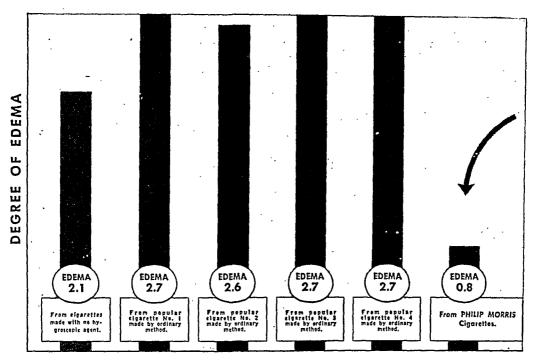
### A PICTURE

## that means more than a thousand words



HOW IRRITATION VARIES FROM DIFFERENT CIGARETTES Tests made on rabbits' eyes reveal the influence of hygroscopic agents

CONCLUSION:\* Results of these tests show that regardless of blend of tobacco, added materials, or method of manufacture, the irritation produced by ordinary cigarettes is measurably greater than that caused by Philip Morris.

CLINICAL CONFIRMATION:\*\* On men and women smokers with throats irritated by smoking, Philip Morris have been shown to be definitely less irritating.

## PHILIP MORRIS

Philip Morris & Company, Ltd., Inc., 119 Fifth Avenue, New York



\*N. Y. State Journ. Med. 35 No. 11,590 \*\* Laryngoscope 1935, XLV, No. 2, 149-154

TO THE PHYSICIAN WHO SMOKES A PIPE: We suggest an unusually fine new blend—Country Doctor Pipe Mixture. Made by the same process as used in the manufacture of Philip Morris Cigarettes.

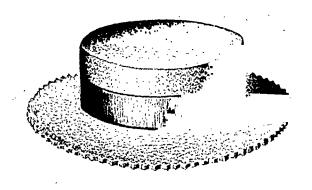
# Lilly blood processing

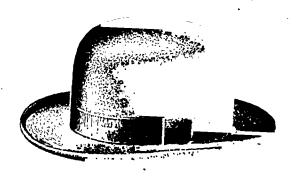
## Two Million Mark



An occasion of major proportions was observed early in February when Eli Lilly and Company completed processing into plasma the two millionth pint of blood. Blood comes to the Lilly Laboratories from Red Cross donor centers in Atlanta, Chicago, Cincinnati, Columbus, Indianapolis, Louisville, Milwaukee, and St. Louis. Mobile bleeding units operate out of all these centers to accommodate donors in the smaller surrounding cities and towns. Blood is sent from donor centers daily in insulated refrigerator boxes and reaches the processing plant by overnight express.

Plasma is employed to combat shock which so often accompanies battle injuries. Various substitute fluids have been suggested from time to time, but human plasma is most satisfactory. Dried plasma has the advantages of completeness from the physiological standpoint, stability, ease of transportation in large quantities, and rapidity with which the solution can be prepared. Every package of blood plasma processed by Eli Lilly and Company is supplied to the Government at exact cost of production. Plasma prepared by this Company is not available for civilian needs. Eli Lilly and Company, Indianapolis 6, Indiana, U. S. A.





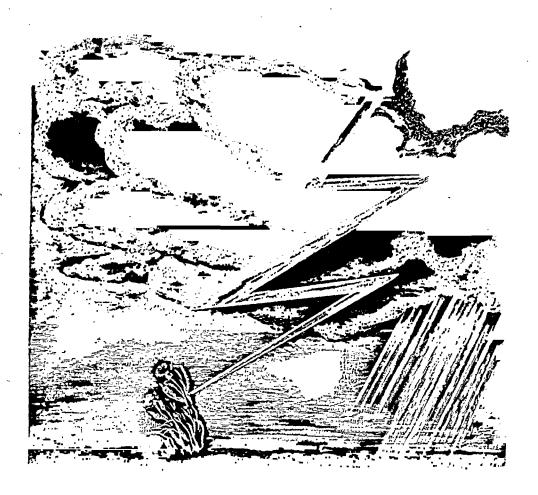
## Different in form

Maltine with Vitamin Concentrates has long been appreciated by physicians for the unusual prescription and dosage control afforded by its liquid form and its solely professional publicity. Potent, palatable and economical, it finds equally high favor with patients. A balanced multiple vitamin preparation for use as a rational dietary supplement, it is compounded with the precision typical of all Maltine products. Each fluid ounce contains:

Vitamin A	10,000 U.S.P. Units
Vitamin D	1000 U.S.P. Units
	3 Milligrams
	Thiamine Hydrochloride
Vitamin B <sub>2</sub>	.4 Milligrams Riboflavin
Nicotinamide	40 Milligrams
Pantothenic Acid	350 Micrograms
Dicalcium Phosphate	17 grains
Maltine	q.s.
	acription pharmacies in bottles (altine Company, New York.

#### Maltine with Vitamin Concentrates





## **FAST ACTION**

The average asthmatic or hay fever patient is relieved within 15 minutes after taking a Tedral tablet. Tedral relaxes the bronchial muscles, reduces swollen membranes, and improves the ability to expectorate.

Adult Dosage: 1 to 2 tablets three times daily. In 24's, 120's and 1000's—also Tedral Enteric Coated for delayed action during sleep. The Maltine Co., New York. Established 1875.

TEDRAL—for relief in asthma and hay fever



MEET JACK GIBSON, sound man of NBC. Jack is one of the mysterious "they" in the common expression of wonderment, "What will 'they' think of next?" The ominous rumble of thunder, so terrifying to millions of radio listeners, he creates by deftly striking and shaking a huge sheet of tin plate. From other contrivances born of Jack's ingenuity, the crackle of flames, the splash of rain, the drumming of horses hoofs are simulated with startling fidelity. Practically every sound from the flutter of the wings of a butterfly to the clamor and din of a busy factory comes within the range of his ingenuity. Jack is a master craftsman.

The medical research worker is ingenious too, but

in quite a different manner. For although his accomplishments may seem as magical, with him there is no theater, no imitations, no pretense. In parasitized tye, . he has found ergot. From the mold Penicillium notatum, he has developed the powerful penicillin. His work is based on scientific fact, and the fruits of his labors must be subjected to extensive and severe clinical trial, in which the studies of a year may be lost in an hour. In addition to ingenuity of the highest order, the medical research worker must possess unlimited patience, tireless energy, and courage unexcelled. His contribution to medical practice and the public health is immeasurable.

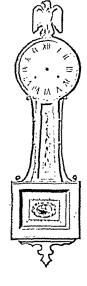


# Recovery

FOR THE convalescent, calm restful nights together with pleasant cheerful days may

hasten the day of recovery. Bedtime sedation with 'Seconal Sodium' (Sodium Propyl-methyl-carbinyl Allyl Barbiturate, Lilly) encourages wholesome, natural rest. 'Seconal Sodium' acts promptly, carrying the patient over the threshold of sleep. It is then destroyed rapidly in the body and the effect is completely dissipated within six to eight hours. The patient awakens in the morning fully refreshed, ready to enjoy visits during the day with considerate relatives and friends.

ELI LILLY AND COMPANY · INDIANAPOLIS 6, INDIANA, U.S.A.



## in no time at all

In no time at all you can assure your patient of a constant intake of all these essential vitamins with

## a UNICAP\* a day:

Vitamin A . . . . 5,000 U.S.P. units Vitamin B . . . 500 U.S.P. units Vitamin B . . 500 U.S.P. units Ascorbic Acid (Vitamin C) . . . . 37.5 mg. Thiamme Hydrochloride (Vitamin B<sub>1</sub>) 1.5 mg. Riboflavin (Vitamin B<sub>2</sub>) 0.2 mg. Pyridoxine Hydrochloride (Vitamin B<sub>3</sub>) 0.2 mg. Calcium Pantothenate . . . 1.0 mg. Nicotinic Acid Amide (Nicotinamide) 20.0 mg. \*\*Trademata. Ret U.S. D. 1.0 AVAILABLE IN BOTTLES OF 21, 100 AND 25



## diaper rash protection



Dermatologists and pediatricians have learned one thing from industry-the efficacy of protective ointments in preventing industrial dermatitis. By applying a protective ointment before contact with irritating substances, the worker has been able to prevent disabling dermatoses.

The same plan is effective in avoiding diaper rash. If baby's buttocks are anointed with 'Borofax' borated ointment at each diaper change, irritation from soiled, urine-soaked diapers will be largely avoided and danger of infection lessened.

'Borofax', containing 10% boric acid in a bland emollient base, is highly effective in relieving the discomfort of an already established skin irritation.

Issued in collapsible tubes of 34 and 134 ounces.

Ideal for baby's tender skin Horofax



## **Vitules**

#### IMPROVED FORMILLA VITAMIN CAPSHIES

FORMULA BASED

### The Modern "Uardstick" of Nutrition

aecommenoed DUSTABY ALLOWANCES MATUONAL DESIANCE COUNCID

The dietary recommendations of the Food and Nutrition Board of the National Research Council have been widely adopted as standards for good nutrition.

They have become a sort of "vardstick" of nutrition.

These standards are considerably higher than those believed to represent the "minimum daily requirements".

The vitamin content of Vitules is based on the recommended dietary allowances for the moderately-active adult male.

There is little doubt that the average healthy patient can and should obtain these quantities of vitamins from a good diet of natural foods.

However, an independent source of these important food factors is desirable in certain cases.

Vitules are recommended as an independent source of optimum quantities of the essential vitamins:

to supplement dietary management in patients on restricted diets,

to supplement dietary management in those who show objective evidence of multivitymin deficiencies.

to ennales

ŧ

an preopand postoperative cases.

Here is how the Vilules formula compares with the recommended dietary allowances? for vitamins: VITAMIN A: Recommended:

5000 U.S.P Units 5000 U.S.P. Units Vitules: VITAMIN D: Recommended: 1000 Vitules: U.S.P. Units 75 mg 75 mg. ASCORBIC ACID. Recommended. Vitules. 1.8 mg 20 mg. THIAMIN. Recommended-Vitules: RIBOFLAVIN-Recommended: 2.7 mg. 30 mg. Yitules: 18 mg. 20 mg. NIACIN Recommended: Vitules PYRIDOXINE Recommended: (vitamin Be) Vitules: 2 mg. ALCIUM Recommended: 11 20 mg.

the Vision of the model of the

Vitules

PANTOTHENATE:

ft"In addition to the three factors of the B complex ineluded, other members of the group, such as vitamin Bo and pantothenic acid, should be given consideration."

l Recommended Dietary Allowances, National Research Council Reprint No. 115, January, 1943.



POWER....

● The analgesic power of DEMEROL hydrochloride ranks between morphine and codeine, but carries with it considerably less risk of addiction. The majority of patients do not acquire tolerance. The incidence of euphoria produced by DEMEROL hydrochloride, in the presence of pain, is only 10 per cent. Furthermore, respiratory depression from DEMEROL hydrochloride is very uncommon, and the drug has no constipating effect.

### Spasmolylic and sedalive action

In addition to its marked analgesic potency, DEMEROL hydrochloride possesses spasmolytic action similar to that of atropine and papaverine, as well as mild sedative effects.



HYDROCHLORIDE

BRAND OF MEPERIDINE HYDROCHLORIDE

#### ANALGESIC . SPASMOLYTIC . SEDATIVE

SUBJECT TO REGULATIONS OF THE FEDERAL BUREAU OF NARCOTICS

Winthrop Chemical Company, Inc.

PHARMACEUTICALS OF MERIT FOR THE PHYSICIAN . NEW YORK 13, N. Y. . WINDSOR, ONT.



#### IN THE TREATMENT OF

## Industrial Contact Dermatoses

High Therapeutic Efficacy—TARBONIS is anti-inflammatory, is decongestant, and promotes resolution. It is of proven value in the control of industrial dermatoses (against a wide range of irritants), eczema, psoriasis, seborrheic dermatitis, certain tinea infestations, lichen simplex chronicus—in fact, whenever tar is indicated.

A Dependable Antiproritic—TARBONIS relieves the pruritus attending many skin conditions—stops scratching.

An Effective Barrier—Wide use in industry has demonstrated the protective efficacy of TARBONIS against skin irritants of almost every conceivable nature, and under exposure to all kinds of ordinarily disturbing physical conditions—excessive heat, dryness, steam, etc.

TARBONIS, a unique tar ointment, presents all the therapeutic efficacy of crude tar in a new, highly cosmetic form. Its active ingredient is a liquor carbonis detergens (5%), made by a process distinctly its own.

The therapeutic efficacy of tar is attributed to its complex contents of phenol and cresol derivatives, its sulfur compounds, its unsaturated hydrocarbons. In the liquor carbonis detergens of TARBONIS these compounds are present in notably higher concentrations.

The vehicle of TARBONIS is a special vanishing-type cream which contributes to the therapeutic superiority of TARBONIS by exhibiting all the contained active substance to the area to which applied.

Physicians are invited to send for clinical test sample and a copy of the comprehensive, illustrated brochure on tar therapy

#### THE TARBONIS COMPANY

4300 Euclid Avenue Cleveland 3. Ohio

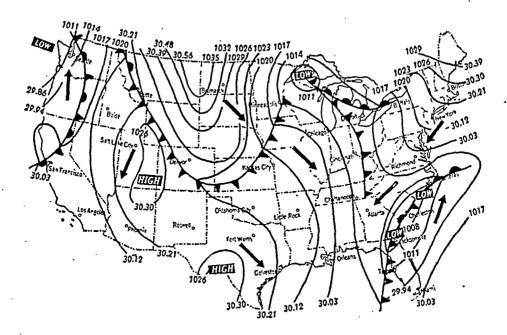
Distributed in Canada by Fisher & Burpe, Ltd., Winnipeg, Man.

## TARBONIS

REG. U. S PAT. OFF.

All the therapeutic value of tar in an odorless, greaseless, non-staining, non-soiling, vanishing-type cream.

C. F. ANDERSON CO., Distributors . . 901 Marquette Avenue . . Minneapolis





## 'Alka-Zane' weather...

Weather maps and your jangling telephone denote the season of increasing incidence of diseases requiring sulfonamide therapy... and 'ALKA-ZANE'\* Alkaline Effervescent Compound. Given in water as a refreshing drink, 'ALKA-ZANE' Effervescent Compound provides the two primary safeguards now known to be essential in avoiding sulfa drug crystalluria and its renal complications: (1) Elevation of urinary pH, thereby increasing the solubility of sulfonamides and their conjugates to help prevent their precipitation in the urinary tract. (2) Increased fluid intake and urinary output—to minimize further the possibility of crystalluria.

\*Trademark Reg. U. S. Pat. Off.

## \*ALKA-ZANE'

#### ALKALINE EFFERVESCENT COMPOUND

supplies balanced quantities of calcium glycerophosphate, calcium phosphate, potassium bicarbonate, sodium bicarbonate and sodium citrate.



#### FULL-FLEDGED COOPERATION

Mucilose, a highly purified hemicellulose which provides greater bulk from smaller dotts at lower cost. Published data° show that Mucilose yields much more bulk than other well-known psyllium-base products. Doses are correspondingly smaller, and savings in cost to the patient average 65 %.

MEGONOSE

Uighly Purified Hemicellulose

#### FOR INTESTINAL BULK



SUPPLIED in 4-oz bottles and 16-oz containers. Also available as Mucilose Granules, a dosage form preferred by some patients.

Frederick Steam 10 St Company

DETROIT 31, MICHIGAN

NEW YORK . KANSAS CITY . SAN FRANCISCO . WINDSOR, ONTARIO . SYDNEY, AUSTRALIA . AUCKLAND. NEW ZEALAND

MUCHOSE is a hydrophilic vegetable colloid composed of the highly purified hemicellulose of Plantago loefingii.

LUBRICATING BULK is provided for gentle stimulation of intestinal peristalsis because approximately 50 parts of water are absorbed to produce a colloidal gel. BLAND, hypoallergenic, and free from irritants, it is also non-digestible, non-absorbable, and chemically inert in the digestive tract.

INDICATED in the treatment of both spassic and atonic constipation, and as an adjunct to dietary measures for the control of constipation in aged, convalescent and pregnant patients.

DOSAGE: 1 or 2 teaspoonfuls in a glass of water, milk, or fruit truce once or twice daily, followed immediately by another glass of figurd, it may also be placed on the rongue and washed down, or it may be eaten with other foods such as creals. Ample fluid intake is advisable to assure maximum bulk formation.

an agus com en l'amarana anno es L'Igre l'Article Ca





## KAOMAGMA KAOLIN IN ALUMINA GEL

. . . for quick relief from diarrhea

There are many diseases of the gastrointestinal tract in which diarrhea is a symptom. Before specific treatment is begun, however, the physician frequently finds it necessary to check the diarrhea quickly in order to prevent the loss of body salts and water. For this purpose, Kaomagma acts promptly and safely.

KAOMAGMA consolidates fluid stools.

KAOMAGMA coats and protects irritated mucosa.

FOR DIARRHEA CONTROL administer two tablespoonfuls of Kaomagma Plain, in a little water, at the onset. Follow with one tablespoonful after each bowel movement.



Supplied in 12-Fluidounce Bottles

## KAOMAGMA

Kaolin in Alumina Gel





#### ALL THE AMINO ACIDS KNOWN TO BE NEEDED IN HUMAN NUTRITION\*

\*"It is evident . . . that all the essential amino acids are present in the casein hydrolysate (Parenamine)."—Block, R. J., and Bolling, D.: Am. J. Pharm, 116:368, 1944.

• The efficacy of Parenamine in restoring and maintaining positive nitrogen balance and correcting hypoproteinemia is attested both by published reports and extensive clinical experience. It is proving especially valuable in pre- and post-operative management and in other conditions where protein deficiency retards clinical progress—conditions associated with restricted intake, impaired absorption, increased need, or excessive loss of proteins.

PROTEIN DEFICIENCY

## Parenamine Amino Acids Stearns



NEW YORK

KANSAS CITY

SAN FRANCISCO

WINDSOR, ONTARIO

Att AMINO ACIDS known to be essential in human nutrition in a 15% solution for parenteral use Derived by soid hydrolysis of easein and fortufied with pure dh-tryptophane.

UNIFORMITY, sterility, and freedom from pyrogens assiduously checked by laboratory procedures, animal testing, and injection of full therapeutic doses clinically

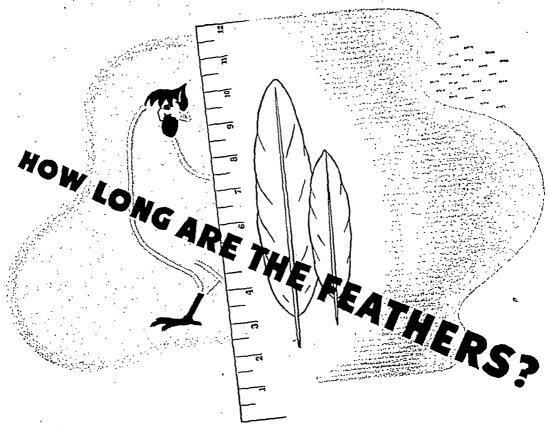
ADMINISTRATION - intravenous, subcutaneous, or intrasternal.

INDICATED IN protein deficiencies and conditions of restricted intake, faulty absorption, increased need, or excessive

Complete Section 1

loss of proteins Particularly useful in preoperative and postoperative management, nephrotic toxemia of pregnancy, burns, delayed healing, gastro-intestinal disorders, cirrhosis, nephrosis, fevers, and other hypermetabolic states

SUPPLIED in 100 cc. rubber-capped bottles.



The Special Liver Fraction used as the base of Beta-Concemin provides the complete B complex.

This has been demonstrated in experiments where chicks fed a diet supplemented with the Beta-Concemin Liver Fraction develop optimum feather growth, whereas those fed a diet supposedly adequate in all known vitamins do not feather normally.

Moreover, this Liver Fraction has a favorable effect on growth, mortality and hemoglobin formation in the laboratory animal.

#### BETA-CONCEMIN

Brand of Vitamin B Complex

#### Contains the COMPLETE B Complex

Delicious, fruity ELIXIR BETA-CONCEMIN is supplied in 4-oz., 12-oz. and gallon bottles—average dosage is 2 or 3 teaspoonfuls daily. Convenient BETA-CONCEMIN TABLETS are supplied in 100's and 1000's—average dosage is 2 or 3 tablets daily. Capsules Beta-concemin with Ferrous sulfate, expressly designed for treatment of iron-deficiency anemias, are also available in 100's and 1000's—average dosage is 4 to 6 capsules daily.



Trademark "Beta-Concemin" Reg U. S. Pat. Off.

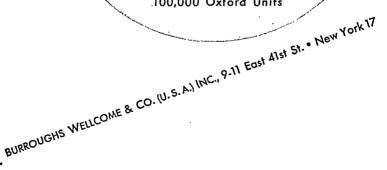
THE WM. S. MERRELL COMPANY

CINCINNATI, U.S.A.

Availability

Burroughs Wellcome has made available for general therapeutic purposes Penicillin Sodium, now that this vital drug is released for civilian use.

100,000 Oxford Units







Views of the left hand of a female, aged 64 years; illustrating an atrophic arthritis involving an unusual age group; duration of disease, 8 years; occupation, housewife.

This shows the so-called fusiform or spindle-shaped fingers due to and best illustrated by swollen soft tissues about the fourth and fifth as well as the second proximal interphalangeal joints. The skin appears dry, shiny and illustrates trophic disturbances characterized by brownish to red yellow mottling. The distal phalanges are pale yellow to gray in color with spotty red discolorations and are poorly functional. General involvement: cervical and lumbar spine, right hip and symmetrical changes in the wrists, knees and feet.

# Born of Research... [5] BEERON in Arthritis

Ertron\*, differing from any previous agent employed in the treatment of arthritis, has been singularly effective against this common affliction.

Now, after a decade of intensive investigation in hospital, laboratory, clinic, and private practice, the vast number of articles in foremost medical journals testify to the value of Ertron.

SPECIFY ERTRON—In the large list of bibliographic references, the importance of both safety and effectiveness is stressed. Quite consistently is it mentioned that the Whittier Process product—Ertron—has the essential features of non-toxicity and successful therapeutic response.

ERTRONIZE THE ARTHRITIC—To Entronize the arthritic patient, employ Ertron in adequate dosage over a sufficiently long period to produce beneficial results. Gradually increase the dosage to the toleration level—maintain this dosage until maximum improvement occurs.

Ertron alone—and no other product—contains electrically activated vaporized ergosterol (Whittier Process). It is the product which numerous investigators have repeatedly shown to be effective and nontoxic in recommended dosages.

ERTRON PARENTERAL—For the physicion who wishes to reinforce the routine ord administration of ERTRON by intramistular, injections, ERTRON Parenteral is available in packages of six Icc. ampules. Each ampule contains 500,000 U.S.P. units of electrically activated, vaportized ergosterol [Whitter Process].

Supplied in bottles of 50, 100 and 500 capsules

## NUTRITION RESEARCH LABORATORIES CHICAGO

\*Reg U. S. Pat. Off.

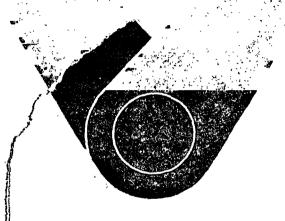
# THREE \ TEN-THOUSANDTHS OF AN INCH

The erythrocyte, probably the most vital 3/10,000 of an inch, is subject to wide variation in size, form, and color in the anemias. 'Tabloid' 'Ferad' No. 2 is a clinically proved agent for the treatment of iron-deficiency anemias. The most effective therapeutic form of iron—ferrous sulfate (Ferrous Sulfate, Anhydrous gr. 2%) is provided together with sodium carbonate (Sodium Carbonate, Anhydrous gr. 1%) for optimal gastric tolerance.

'FERAD' #2

'TABLOID'

'Tabloid' and 'Ferad' Registered Trademarks





BURROUGHS WELLCOME & CO. (U.S.A.) INC., 9-11 East 41st St. • New York 17





A sherry flavored vitamin  $B_i$  preparation that will stimulate the patient's appetite and serve as a convenient source of additional thiamine.

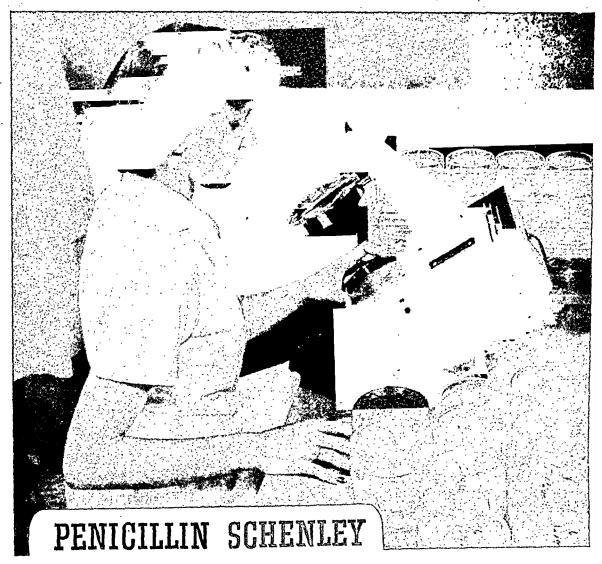
Elixir Bewon is an excellent prescription vehicle, compatible with most medicaments.

Each fluidounce of Elixir Bewon contains 300 International Units of crystalline vitamin B<sub>1</sub> (thiamine hydrochloride).

## **ELIXIR BEWON**

ELIXIR THIAMINE CHLORIDE



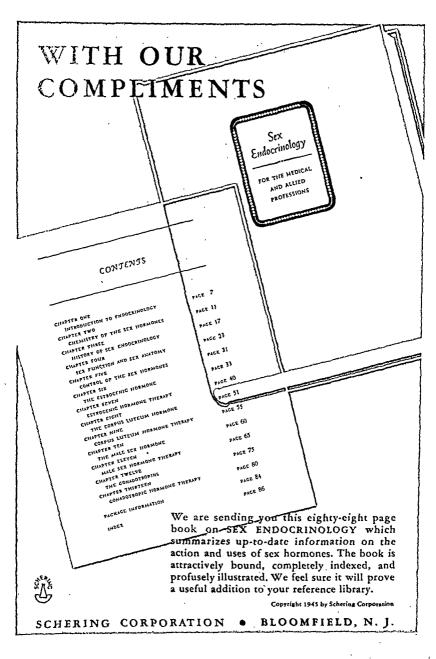


## - the drug that gives new meaning to the word "control"

The penicillin which first attracted the attention of Alexander Fleming was an "occurrence of nature", with no control exercised over the conditions of its production. Production of pyrogen-free penicillin for the medical profession, however, is accomplished only by the most elaborate methods of control for insuring highest attainable productivity, potency, and purity.

Shown here is one of the many rigid controls exercised at the Schenley Laboratories. In this step, PENICILLIN Schenley is being tested to insure standard potency. As supplies of penicillin increase, the elaborate system of control will continue to safeguard its production at Schenley Laboratories.





SMOOTHIAGE

MODERN CONCEPT IN THE TREATMENT OF CONSTIPATION



## METAMUCIL

Metamucil softens the fecal residue, protects intestinal mucosa and exerts a gentle, stimulating, physiologic peristalsis.

Metamucil is the highly refined non-irritating extract of a seed of the psyllium group, Plantago ovata (50%), combined with dextrose (50%).

Metamucil mixes readily with liquids—is pleasantly palatable. Supplied in 1-lb., 8-oz. and 4-oz. containers.

G. D. SEARLE & CO., Chicago 80, Illinois.

Metamucil is the registered trademark of G. D. Searle & Co.

SEARLE

# AN IMPORTANT DIFFERENCE YOU SHOULD KNOW ABOUT

In prescribing gelatine for special diets, plain, unflavored gelatine should be specified...not gelatine dessert powders which are 78 sugar, artificially flavored and acidified.

Knox Gelatine (U.S.P.) is pure, unflavored gelatine... all protein, no sugar...manufactured under rigid physical and chemical control.

Send for free booklets, listed on coupon below, to help you vary prescribed diets.

#### KNOX GELATINE

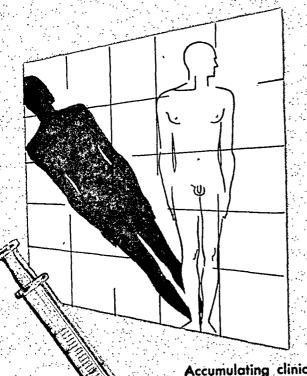
U. S. P.

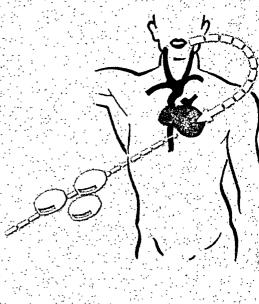
IS PLAIN, UNFLAVORED GELATINE...ALL PROTEIN, NO SUGAR

The Knox Gelatine, Johnston	ibing Special Diets! Free booklets Gelatine to dietary requirements. wn, N. Y., Dept. 403
☐ Feeding Sick Patients ☐ Diabetic Diet. ☐ Peptic Ulcer ☐ Infant Feeding.	No. Copies Desired  Recipes Diets and  Recipes  Protein Value of Plain, Unflavored Gelatine
Name	
Address	,
City	
	State

## MBINED ANDROGENIC THER

(PER ORAL AND PARENTERAL)





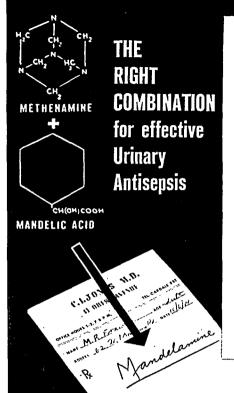
Accumulating clinical reports show that prompt results are achieved - in both the male and female - when androgenic therapy is initiated with PERANDREN\*, and then followed with METANDREN\* Tablets. Both intramuscular and oral forms contain the most effective androgenic substances known, and if desired may be used interchangeably in most indications. Common Indications for Androgenic Therapy: Impotence,

Hypogonadism, Eunuchism, Angina pectoris - Menorrhagia, Metrorrhagia, Menopause, Dysmenorrhea.

PERANDREN (testosterone propionate) and METANDREN (methyl-testosterane) have all the advantages of the natural testicular hormone, testosterone.

\*Trade Marks Reg. U. S. Pat. Off.

PERANDREN: in ampuls of 1 cc. containing 5 mg., 10 mg., and 25 mg. METANDREN: in tablets of 10 mg., scored.



By combining the specific antibacterial actions of both mandelic acid and methenamine, the resultant compound—Mandelamine—achieves a far wider range of therapeutic activity while eliminating most of the toxic reactions which are frequently encountered when either of these components is used alone.

In addition to its greater effectiveness and lower toxicity, Mandelamine is of value to the busy physician by virtue of the convenient manner in which it may be administered. There is no need for accessory acidification, restriction of fluid intake, dietary control, or other special measures during the course of Mandelamine therapy. And the average daily dose is 3 or 4 tablets 3 times daily.

Literature, and a physician's sample will be mailed to you upon return of coupon.

## MANDELAMINE

Reg. U. S Pat. Off. (Methenamine Mandelate)



NEPERA CHEMICAL CO. INC. 21 Gray Oaks Ave. Yonkers 2, New York

Please send me literature, and a physician's sample of Mandelamine.

íame	 	 М.D.

NEPERA CHEMICAL CO. INC.

Manufacturing Chemists



YONKERS 2, New York

## From Rice Bran

...a rich supply of the vitamin B complex factors

Knowledge of rice bran values has progressed rapidly since Eijkman's early work.

Rice bran extract, through years of experimentation, and by comparison with other B-vitamin materials, has now been established scientifically as a highly desirable natural source of the vitamin B complex.

Elixir Ribranex\* provides the natural vitamin-B factors present in rice bran with added crystal-line thiamine, riboflavin and niacin amide.

All these potent vitamin-B factors are contained in a delicious sherry wine base.

Your patients will find Elixir Ribranex pleasingly palatable and especially well tolerated.

\*REG. U. S. PAT. O

ALCOHOL 145
TENDONE of the first and the fir

RIBRANEX

At all pharmacies in 8-fluidounce and 32-fluidounce bottles Two teaspoonfuls (8 cc.) Elixir Ribranex will supply the adult minimum daily requirements for thiamine hydrochloride and riboflavin together with niacin amide and other factors of the vitamin B complex as present in an aqueous extract of rice bran.

NOTE: For treatment—dosage may be increased at the discretion of the physician.

## Elixir RIBRANEX

Wyeth

#### AT LAST!

# ...a dermal suture that successfully meets surgeons' six specifications

A recent survey was made to learn what specific characteristics surgeons sought in a dermal suture. It was disclosed that the six most essential qualities were: (1) softness and pliability for ease of handling; (2) easy removal without pain; (3) non-adherence to skin; (4) absence of cracking or fraying—no wound disruption or breakage when knots are tied; (5) ease in tying and non-slippage of knots; (6) tolerance by tissue with freedom from tissue reaction and wound infection.

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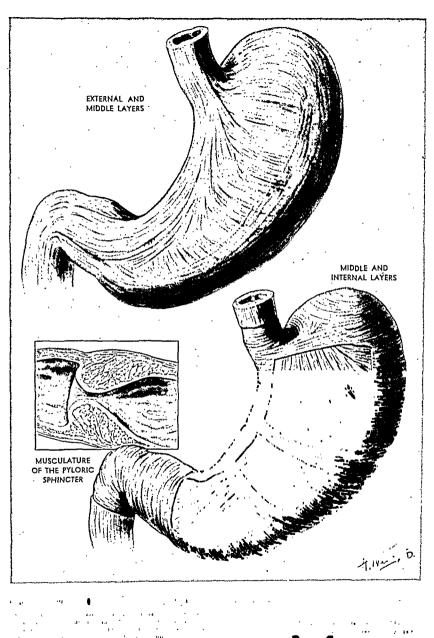


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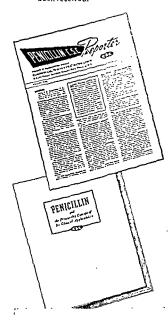
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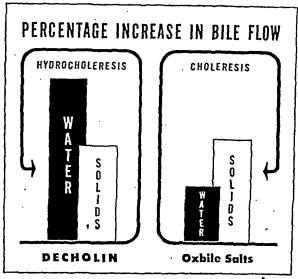
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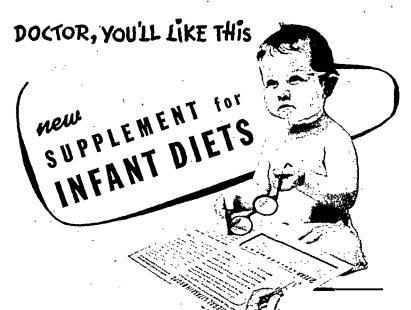
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## Small Film Radiography in Industrial Groups

Herman E. Hilleboe, M.D.† Arthur W. Newitt, M.D.† Washington, D. C.

N the basis of the decline in the mortality of tuberculosis in the United States-the crude rate in 1940 was one quarter of the rate in 1900several workers have intimated that tuberculosis is no longer a serious problem and have viewed the situation with complacency. However, even a casual perusal of the mortality and morbidity tables will quickly demonstrate to the critical observer that tuberculosis remains in the foreground as a public health problem. Approximately 60,000 tuberculosis deaths were reported yearly by state health departments in the five-year period, 1939 to 1943. Furthermore, tuberculosis is the principal cause of death of persons 15 to 35 years of age. In the age group, 20 to 34 years, one in every six deaths in the white population and one in every three deaths in the colored are due to tuberculosis.

Industrialization appears to be assuming a prominent role as a causal factor of high tuberculosis mortality rates. In 1939 to 1941 these rates were higher in cities than in

†Medical Director and Surgeon (R) Respectively, Tuberculosis Control Division, U S Public Health Service, Washington, D C

rural areas for all age groups, and for all races. It is interesting, however, that whereas tuberculosis mortality increased with increasing size of community for adult males of both white and colored extraction, it decreased for adult white females, and remained practically the same in communities of all sizes for adult negro females.

During the present war emergency, special problems have appeared to demonstrate again the close relationship between war and tuberculosis. The rate of decline, which in the years just prior to World War II had become quite rapid, is for the first time in two decades beginning to decrease. Indeed, in several large industrial areas, tuberculosis mortality rates have actually increased. During the period 1939 to 1943, an average of 110,000 new cases of tuberculosis have been reported to state and local health departments annually. In the surveys made by the Public Health Service most of the newly discovered cases were not known to local health officials. Accordingly, the number of hidden cases must be up in the hundreds of thousands.

On December 12, 1930, while holding a tuberculous clinic in Little Falls, Minnesota, Dre E. J. Simons and H. Hillebor evesield some splendid tuberculous work they were conducting as general practioners in the village of Swanville Their program consisted of administering the program consisted of administering the program of the chests of the reactors and pile, making x-ray films of the chests of the reactors and applying various differential disagnostic procedures to those who presented x-ray shadows. This was an ideal program and they were immediately invited to present their work be fore the regular meeting of the Lymanhurst Medical Staff in Minnesolinic and described tuberculous: control measures so far in advance of any other community that the manuscript

was requested for publication in the JOURNAL LANCETS where it appeared on April 1919. This was the first the control of the publishers was the first Their vision of the control of this disease was so clearly eximple as speakers by them were

by them were are pleased to is that we have of the Tubercu-Public Health

fine accomplishments of Simons and Hilleboe in the field of tubercuoisis during the past fifteen years and desires to continue its support of their activities—(J A.M., Ed.)

The first step in the preparation of a decisive attack against tuberculosis is a careful and comprehensive evaluation of the extent and nature of the problem in each community. This should be done by reviewing the age, sex, color and geographic distributions, and the economic status of the population. These data should then be considered in connection with the community's morbidity and mortality rates for tuberculosis. (before reliance isplaced on these figures, the completeness and accuracy of the local vital statistics should be investigated). Detailed analyses of reliable morbidity and mortality data will quickly indicate the magnitude of the problem and clearly establish those groups most seriously affected and urgently in need of concentrated attention. Spot maps of infectious cases not isolated in hospitals and sanatoria will also be helpful in denoting the known centers of contagion, where immediate action is imperative.

After the tuberculosis problem has been defined as completely as possible, careful inventory, both qualitative and quantitative, must be made of the facilities and resources being utilized for tuberculosis control in the community. With exact knowledge of the extent of the problem, including both what is, and what is not being done, it is possible to prepare a specific plan of control. An effective program of tuberculosis control should embrace four principal phases: 1) case-finding, 2) medical care and isolation, 3) after-care and rehabilitation, and 4) protection of the tuberculous family against economic distress. A program which includes these public health measures, supported by research and well-planned health education in each field of endeavor, will be certain to reduce the morbidity and mortality from tuberculosis.

In order to produce significant results, case-finding efforts should be directed toward those groups of the population where a high prevalence of disease is suspected and where large numbers of the people can be reached quickly and economically. Until recent years case-finding efforts were centered primarily among the family members of known infectious patients. Since tuberculosis is basically a family epidemic, a high yield of new cases was obtained by this approach. However, limited fieldnursing services and clinical facilities have greatly restricted the program except in those few communities with well developed and ample health services. Moreover, there are many tuberculous families scattered through the population in which the disease is completely unsuspected. Therefore it has been necessary to supplement and complement these family epidemiological studies with other case-finding procedures.

Since the introduction of mass radiography, case-finding has been directed on an extensive scale to large population groups without reference to specific foci of infection. This type of program has been so satisfactory that many physicians have advocated that the entire population be examined radiographically at regular intervals. Such a scheme, however, is rather difficult, and furthermore, does not appear to be essential for the control of tuberculosis. As in the control of other communicable diseases it is probably necessary only to reach a significant proportion of the population within a limited period of time.

There are two sizable segments of the population which may be easily reached by mass radiography. These include: 1) persons admitted to general hospitals, and 2) persons employed in the large and small industries of the nation.

Small film radiography is well suited to case-finding in general hospitals. No expense is entailed in assembling the people for study. In addition, film interpretation may be done by the staff of the department of roentgenology. Furthermore, facilities are already available for completing clinical examinations and providing care and treatment for ambulatory patients.

The procedure also provides several valuable by-products. Increased accuracy in the clinical diagnosis of chest disease is obtained. Non-tuberculous disease is detected more quickly than before. Finally, and of particular importance, employees and nurses in contact with patients are spared unnecessary exposure to those who have tuberculosis in a communicable stage.

It is hoped that soon all general hospitals will provide routine x-ray examinations of the chest just as they now are making routine serologic tests for syphilis. In 1943, over 15 million persons, not including out-patients, were admitted to general hospitals in the United States for care and treatment. The newly discovered cases of tuberculosis found among these patients can logically become the centers from which many other cases can be revealed. By including chest x-ray examinations of all hospital employees also, a large industrial population is easily reached with considerable benefit both to the hospital and to the individual employee.

Hospitals which care for the mentally ill are ideal centers in which to develop mass radiographic methods. In the United States nearly 500,000 patients are currently hospitalized in these institutions. Chest surveys conducted in Minnesota, New York, and Illinois have shown that from 4 per cent to 10 per cent of these patients have x-ray evidence of reinfection tuberculosis. These people are not only likely to infect fellow patients and the institutional members with whom they come in contact but also can disseminate their disease to the general population when released from care.

The second population group in which mass radiographic procedures may be profitably conducted consists of the millions of industrial workers. From 1942 to 1944 over one million workers in the United States were examined by eight transportable field units (35 mm. and 4 x 5 inch) of the United States Public Health Service. In this group of adults, 1.5 per cent had x-ray evidence of reinfection type tuberculosis of which approximately 65 per cent were minimal, 30 per cent moderately advanced, and 5 per cent far advanced according to the classification of the National Tuberculosis Association. This distribution is of considerable interest in view of the fact that minimal cases have comprised only 10 to 15 per cent of the first admissions to tuberculosis hospitals in this country in recent years.

In the course of mass x-ray surveys in industry, a number of chest conditions other than tuberculosis were encountered. The discovery of non-tuberculosis pathology forms a valuable by-product of this work. Gould <sup>2</sup> of

the U. S. Public Health Service made a study of nontuberculosis lesions found among 442,252 chest films of a selected group of apparently normal persons working in large industries, principally shipyards and governmentowned arsenals and depots. The group surveyed must not be considered as a representative sample of the adult population. The tesults, however, do give some indication of the non-tuberculosis chest pathology one may find by routine 35 mm. and 4"x5" mass radiography. All diagnoses were based upon 14"x 17" confirmatory celluloid films taken on persons with abnormal or suspicious small films.

The analysis of this selected group of 442,252 films revealed 4,982 (or 1.1 per cent) with evidence of non-tuberculosis chest pathology; sixty-six different categories of chest lesions were listed. It is interesting to note just a few of the more common findings; abnormal hearts, 2,652 (1 in 167), pneumocomosis 261 (1 in 1700) suspected bronchiectasis 252 (1 in 1800), mediastinal mass 52 (1 in 8500), dextracardia 40 (1 in 11,100). Several uncommon cases were discovered also, including: dermoid cyst, 5 cases; calcification of pericardium, 3 cases; echinococcus cyst of the heart, 1 case (confirmed clinically).

The majority of individuals with these non-tuberculosis lesions were unaware of their disease. It was surprising to note how extensive some of these chest lesions had become without producing symptoms sufficient to cause the individual to seek medical advice. It was gratifying to detect numerous chest tumors in early and remediable stages, when modern surgical measures could be successfully employed. Thus, the by-products become nearly as valuable as the main objective, in mass radiography of the chest.

The choice of small film equipment for a particular industrial chest survey must be based upon careful consideration of the extent of the anticipated yearly load, personnel obtainable, funds available and specific objectives in each proposed application. It is important to have an experienced professional person survey each situation before equipment is purchased or a program started.

The operation of photofluorographic equipment has been markedly facilitated by the development of two automatic devices, the photo-electric timing mechanism (Morgan phototimer) and the roll film automatic camera. These instruments simplify the photofluorographic process so that the operator is required merely to place the subject before the x-ray machine and to close the exposure switch. Time-wasting measurements of the thickness of the chest of each subject and arithmetical calculation of the milhamperage, kilo-voltage, and time are entirely eliminated.

The photo-electric timing mechanism controls electronically the length of exposure by measuring the amount of light on the fluorescent screen. The brilliance of this screen is directly proportional to the amount of radiation coming through the subject being examined. With this automatic control wide variations in types of x-ray equipment are permissible regardless of the thickness of the chest.

For several years the belief has prevailed that roentgenograms of the chest must be made with exposure times of 0.1 second or less to prevent cardiac motion from reducing the clarity of the various intra-thoracic x-ray images. Morgan's investigations 3 of cardiac motion by kymographic methods indicate that these ideas are far from valid. It appears that reorganization of our thinking on this subject is in order. It is apparent from these studies that the detail of the roentgen images of pulmonary structures is not significantly impaired by long exposure times.

Since reasonably long exposure times do not impair radiographic quality, and exposure can be exactly determined even with electrical sources of uneven output, the whole picture of mass radiography changes. A low-powered self-rectified x-ray unit can now be utilized where the number of subjects to be examined is not too large and operating conditions are not severe. As a matter of fact, the Tuberculosis Control Division has had a complete unit costing less than \$3,000 in rather continuous experimental operation with satisfactory results.

The frequently debated question of the relative diagnostic accuracy of different sized x-ray films is now well on the way to a definite solution. The problem has been resolved into its component parts—first, limitations due to physical characteristics of the films and equipment, second, variations due to extrinsic factors which are the human errors made by the interpreters themselves, and third, the lack of uniformity in the classification of significant x-ray shadows presumably characteristic of pulmonary tuberculosis.

Comparative studies made during the period 1939 to 1943 have become of little value already, because of the striking advances that have been made in radiographic quality of all types of small films, 35 mm., 70 mm., and 4"x 5".

On the basis of controlled studies made in 1944 on the physical characteristics of 35 mm., 4"x 5", and 14"x 17" sensitized paper and 14"x 17" celluloid films, it appears that all of the different sized films are capable of detecting pathology of the density commonly seen in parenthymal infiltrations of a tuberculous nature if the roentgen image of the lesson is over 0.5 cm. in diameter. Studies are now going forward to determine variations in the so-called extrinsic factors. Present indications are that these human errors are of considerable magnitude even among highly skilled interpreters, regardless of what size of film is used.

There is such a tremendous task to perform in casefinding in the whole country that the policy of the U. S. Public Health Service has been to recommend the use of every known method of roentgenographic examination, provided high quality films are produced and expert interpreters are employed. These two requirements are basic and paramount and must be maintained in industrial surveys, despite the temptation to sacrifice quality to sheer quantity and speed.

As pointed out previously, it is essential to examine all present employees and all new employees and to make periodic examinations at reasonable intervals of the entire working force of an industry in order to discover and control new cases as early as possible. Careful clinical study will then provide a sound medical basis for the immediate and ultimate disposition of each person suspected of having pulmonary tuberculosis. Depending on the extent of the lesion, presence or absence of activity and work capacity of the individual, definite placement plans can be made for continued employment under medical supervision or interruption of work if isolation and treatment are indicated.

Care must be exercised in the diagnosis of minimal lesions and the determination of their activity. Many employees have been penalized unnecessarily because of hasty conclusions drawn from the interpretation of a single flat plate of the chest. The more one sees of socalled minimal lesions on x-ray films, the more cautious one becomes in their interpretation. It has been found that competent readers often differ in their impressions of the activity of a lesion on a particular film. Indeed, it is true that a reader will not always make the same conclusion in interpreting the same film on two different occasions. The only safe rule to follow is careful clinical study, including examination by gastric lavage and tuberculin tests if indicated, before differential or final diagnosis is made. It may be necessary often to wait three to six months for comparative clinical study and examination of serial x-ray films before a definite diagnosis or determination of activity can be made.

Effective tuberculosis control, especially in industrial groups, requires a sound program of rehabilitation. Industry and the community must accept this responsibility jointly. Temporary and permanent sheltered employment will be necessary. The English have demonstrated the effectiveness of practical measures such as the industrial colony, the training colony, and the local workshop. This aspect of the tuberculosis problem presents many difficulties, but these can be overcome if full use is made of our tremendous and varied resources.

Because the problem is social and economic as well as medical, and requires the aid of all community groups for successful solution, other groups besides the medical profession are sooner or later drawn into the picture. The wisest plan is to enlist the aid of such groups from the beginning. Sharing in the planning of a program will result in a sharing in responsibility for its success as well. The local sanatoria, the voluntary tuberculosis association, welfare agencies, management, labor, and rehabilitation groups have definite contributions to make, and can render invaluable aid to the health department and private physicians. The industrial group is only one part of the population, and should be given consideration in direct proportion to the extent of its problem as it touches the community as a whole.

Financial security for the tuberculous person who is hospitalized or whose employment is limited, has come to be a responsibility the public must accept, if control of the disease is the goal of the community. Over-crowded living conditions, poor home hygiene, and fear of want during the absence of the breadwinner from the home all contribute to failures of arrest of the disease in individual cases. Lack of attention to these social and eco-

nomic factors results in the continued spread of the disease from uncontrolled open cases.

Psychological and economic adjustments often present greater problems than does the medical treatment. A comprehensive scheme is needed to satisfy all these elements. Financial grants should be available to patients and their families during the periods of treatment, aftercare, and rehabilitation. These may need to be extended over long periods of invalidism or indefinitely in cases of permanent disability. Children must be properly cared for when the mother must leave the home to enter the sanatorium. Without these social and economic safeguards, the best medical program for tuberculosis control in the community will languish, and its cost will mount.

In addition to mass radiography, several other methods are available for case-finding, and full use should be made of all of them. Carefully taken histories and physical examinations are useful in the detection of new cases having subjective symptoms or objective findings; unfortunately, however, in the early stages of pulmonary tuberculosis both symptoms and physical findings are usually absent or escape notice.

The routine use of the tuberculin test in the office of the private physician is a useful method of finding infected persons. Chest x-ray examinations of the positive reactors separate those in need of clinical study from those who do not require such study. This method is particularly effective in the preliminary screening of household associates of infectious cases in rural areas. If the interest of the thousands of rural physicians can be aroused and translated into action, an important part of the population can be examined with gratifying results. In those areas, the family physician is usually the first to see the tuberculous individual and the one to whom the patient is returned after sanatorium care. The family physician who is conscious of the unseen presence of tuberculosis and who suspects and properly examines every one entering his office will uncover surprisingly large numbers of new cases.

Following the chance occurrence of two juvenile cases of tuberculous meningitis in a small community of 450 persons in rural Minnesota, and the attendant interest aroused by the parents, Simons and Hilleboe <sup>4</sup> discovered 19 cases of reinfection tuberculosis in the community and the surrounding district in the following nine months. This was largely the result of routine tuberculin testing and x-ray examination of positive reactors of the patients coming into the office, regardless of complaint. Every private physician in the country can repeat this experience if he will apply diligently the simple methods available to him.

It is recognized that tuberculin-testing surveys among school children have great educational value. They are disappointing, however, as a means of finding considerable numbers of infectious cases and the cost per case discovered is excessively high. It is better to concentrate those same efforts on the tuberculin testing of the family and other contacts of known cases. Tuberculin testing is similarly unsatisfactory for the examination of adult groups in which the incidence of positive reactors is high

(e. g. persons in large industries). Little is gained by such testing prior to x-ray examination and valuable time is lost by repeated interruptions of work.

The laboratory demonstration of tubercle bacilli continues to be the most exact method of diagnosis of tuberculosis. Unfortunately, many people with hidden tuberculosis do not raise sputum. In recent years, the examination of the fasting stomach contents obtained by simple gastric lavage has been employed extensively for the detection of virulent acid-fast organisms. This technic is especially useful with persons having minimal lesions but no expectoration. Latyngeal swabs have been used for the detection of tubercle bacilli in Europe but have not been well accepted or used extensively in this country.

The practicing physician will do well to request routine laboratory examinations of the sputum of each of his patients with pulmonary symptoms. A number of these persons will be found to have tuberculosis. Most states provide free laboratory service for such tests.

When funds for tuberculosis control are limited in a given community, great care must be exercised in the choice of case-finding procedures. Those methods should be selected which will reach the greatest number of people in the shortest possible time within the limits of available facilities and personnel. It is interesting to note the comparative results obtained at identical cost by small and large film methods in mass case-finding. It is conservatively estimated that 100,000 persons can be examined by 35 mm, or 70 mm, photofluorography at the same cost as that for the examination of 10,000 or 20,000 persons by 14 x 17-inch roentgenography. It may be argued that several minimal cases of tuberculosis will be overlooked by the former technics. However, even if these methods of mass radiography fail to detect 15 per cent of these lesions, they will still uncover a considerably greater number of cases than the large film technic, due to their inherent economy. Ten thousand 14 x 17 inch celluloid films taken at the same total cost as 100,000 35 mm. films, even under the most favorable conditions, detect a total of only 329 cases of reinfection-type tuberculosis in all stages of the disease, as compared with 1,500 cases by the small film method. (If 1.5 per cent of those examined have reinfection tuberculosis, 65 per cent minimal, 30 per cent moderately advanced and 5 per cent far advanced). The latter technic detects five times as many moderately and far advanced cases as well as an additional 751 minimal cases. The evaluation of the case-finding methods to be used in tuberculosis control must take into consideration quantitative as well as qualitative factors.

In order to achieve the four principal objectives of tuberculosis control great assistance can be given by a carefully planned program of research in each of the fields of operation. Careful studies and investigations are indicated in the evaluation of present-day public health methods. Frequent inventories must be taken by state and local health departments to determine whether or not measures employed are actually decreasing mortality from the disease.

The application of new technical developments in mass radiography should greatly simplify the problem of case-finding among the population groups now difficult to reach. Mass radiography will make possible the epidemiological investigation of entire communities where only a small number of families could be studied before. This will give the epidemiologist an opportunity to study fundamental relationships on an extensive scale in the evolution of pulmonary tuberculosis.

An intensive search must be made for chemo-therapeutic and biologic agents to prevent the disease or to increase an individual's resistance to tubercle bacilli. When a drug or biologic product which will destroy tubercle bacilli in the human body is found, immediate efforts should be made to use the new agent prophylactically, before irreversible pathological processes have developed. Infected household contacts of known infectious cases or nurses exposed to unsuspected tuberculous patients in general hospitals would offer fertile fields for a broad program of prevention of pulmonary tuberculosis.

Careful studies of social and economic problems in the field of after-care and rehabilitation are also needed Among these an evaluation of the economic loss due to tuberculosis in the family and community is indicated. On the basis of such an investigation the social security laws may be amended to protect the tuberculous family against loss of wages.

These are only a few of the urgent problems that must be solved before tuberculosis is brought under control. Scientific research must proceed hand in hand with public health services on a broad scale.

If tuberculosis is to be eradicated, it is essential that the rate at which infectious cases develop in the population be maintained permanently below the rate at which infectious cases are isolated and prevented from spreading the disease. Furthermore, the greater the disparity in the two rates, the more quickly will this eradication be achieved. These fundamental principles, pointed out by Frost, must be constantly borne in mind in the planning and execution of every tuberculosis control program in every community, if success is to be attained.

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Forty to fifty tons of medical supplies are being sent by the Red Cross each month to China. These shipments have been made up largely of late of sulfa drugs and have been flown immediately into an area where there had been outbreaks of plague. Medical shipments are sent to Calcutta, shipped overland to the Assam airfields and from there into China.

## Miliary Tuberculosis vs. Typhoid Fever\*

Case Reports ·

W. E. Peterson, M.D. Albert Canfield, M.D. Minneapolis, Minnesota

HE differential diagnosis of miliary tuberculosis and typhoid fever is an old and often difficult problem in clinical medicine. The following two cases are illustrative of the striking similarity which may be presented by the clinical signs and symptoms of these two diseases. While the laboratory, through agglutination titers and cultures of blood, urine and feces may easily identify the typhoid infection, miliary tuberculosis often masquerades behind negative chest x-rays, negative smears and cultures, to be diagnosed only at postmortem table. A technic which may be of great value in premortem diagnosis of the latter is discussed in an editorial in this issue.

Case No. 3755-A. The case was that of a 44-year-old male negro who was admitted to the Minneapolis General Hospital on May 30, 1944, stating that he felt well until noon of the day of admission, at which time he was seized with a sudden severe chill, followed by a feeling of feverishness, pain in the lumbar region, and a "catchin" pain in the right lower chest anteriorly. Close questioning, however, revealed that for several weeks the patient had suffered malaise, anorexia and weakness, with some weight loss. These symptoms necessitated quitting his job as a janitor. There had been no known exposure to contagious diseases.

Physical examination revealed the blood pressure was 170/110, pulse was 108 and regular, temperature was 105.6, and respirations were 28. The patient was rational and had no apparent respiratory distress. Positive physical findings were limited to left ventricular enlargement of the heart and crackling rales, high-pitched breath tones, and increased tactile fremitus in a small area of the right lower chest anteriorly. Chest x-rays taken on admission showed evidence of cardiac hypertrophy, left ventricular type, but were negative for abnormal pulmonary shadows. He did not react to tuberculin.

Laboratory examinations showed negative serology; hemoglobin was 93 per cent; white blood cell count was 5600 with 86 per cent polymorphonuclears. The white blood cell count later ranged from 2600 to 3300 with a similar differential. Urine showed a faint trace of albumin. Blood cultures on admission, and drawn daily thereafter, were consistently negative, as were urine and feces cultures also. Agglutination test for typhoid and paratyphoid, brucellosis and typhus were reported negative on the second and ninth hospital days. Examination of spinal fluid was essentially negative.

During his hospital stay, the patient's temperature ranged from 103 to 106 daily.‡ The patient grew progressively weaker. On the tenth hospital day, he became irrational and developed left heart failure. X-rays of the chest taken at this time were reported showing sev-

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† The second day the patient developed a moderately severe watery diarrhea which persisted during his hospital stay.

eral small patchy areas of bronchopneumonia. The sputum typed out pneumococcus type 21. The patient was digitalized and started on sulfadiazine, but did not respond to therapy and expired on June 11, 1944. Sternal aspiration was done immediately after death. Numerous miliary tubercles were present in the "marrow units." Postmortem revealed: 1) Generalized miliary tuberculosis involving the lungs, liver, spleen, kidneys, adrenals, esophagus and periaortic lymph nodes; 2) caseous tuberculosis of the bronchial lymph nodes.

Case No. 3610-A. This is the case of a 23-year-old female negro who was admitted to the Minneapolis General Hospital on May 23, 1944, with the complaints that two weeks prior to admission she had developed a cold and cough associated with headache, anorexia, marked in the substernal region. There was aching in the knees and shoulders and the patient had had several episodes of epistaxis. Three days before admission the patient developed chills, fever, and marked diaphoresis. Nausea was present but vomiting occurred only after self-medication. Past history revealed the patient had been treated for acute gonorrhea six months previously and had been closely followed by there was no evidence of recurrence. There was no history of exposure to tuberculosis or other contagious diseases. The patient had not traveled from Minneapolis recently.

Physical examination revealed the blood pressure to be 106/60, temperature was 103.6, pulse 85, regular, and respirations 20. The patient was a well-developed young negress who was rational, but appeared acutely ill. There was three-plus enlargement of the pharyngeal tonsils and slight injection of the posterior pharynx. Despite careful examination, no other abnormal physical findings were elicited. Chest x-rays showed slightly increased basilar markings but no evidence of infiltration or consolidation was seen. There was no reaction to tuberculin.

Laboratory examinations revealed negative serology, hemoglobin was 79 per cent and no evidence of sickling of the red blood cells. The white blood cell count was 5600 with 82 per cent polymorphonuclears. The urine was negative. Blood cultures drawn on two successive days showed gram-negative rods. These later were agglutinated with typhoid serum in dilution of 1:12800, a significant titer. Agglutination tests on May 25th and May 26th were positive for typhoid in a titer of 1:80. On May 29th the titer rose to 1:1280. Typhoid bacilli were also isolated from the feces. The patient's daughter was also admitted to the Minneapolis General Hospital a few days after the mother's entrance, with a very similar clinical picture. A diagnosis of typhoid fever was also made on the daughter. The father was subsequently shown to be a typhoid carrier. The patient was given supportive treatment; she had an uneventful recovery and left the hospital forty-one days following admission.

#### The Tuberculin Test and Health Education

T. L. Harrington, M.D. Milwaukee, Wisconsin

ISCONSIN'S leadership in the fight against tuberculosis is due in no small part to the tuberculin test, and the health education preceding and accompanying the test.

The Wisconsin Anti-Tuberculosis Association began this work in a modest way in 1927, using the Von Pirquet test. In 1930 two child-caring institutions were studied with the Mantoux test. In 1931 a clinic was held in one of the state teachers' colleges, using the Mantoux, in which some 400 students and most of the faculty members were tested. Reactors were x-rayed. Among those found with secondary infection of the lung was a member of the graduating class with far-advanced pulmonary tuberculosis and positive sputum. This clinic was held shortly before the close of the school year, and this young man received his diploma in June and died of pulmonary tuberculosis in September.

The publicity given to this case led to a request for a similar clinic in a high school from the superintendent of schools of the city in which the teachers' college was located. This high school clinic was held immediately after the opening of school in September. Nearly a thousand students and some 65 teachers were given the intradermal test after considerable educational work had been done in the high school. The nature, cause, and danger of pulmonary tuberculosis and the significance of the tuberculin reaction were explained to teachers and pupils in lectures and leaflets. During the preliminary educational work, a special meeting of the school board was held and a resolution was unanimously passed stating that any teacher who failed to take the test should not be surprised if a contract for the following year was not offered. One hundred per cent of the teachers and more than 90 per cent of the students responded. On x-ray, four cases of secondary infection of the lungs with suspicious clinical tuberculosis were diagnosed among the students. No case of suspicious clinical tuberculosis was found among the teachers, although several showed evidence of healed secondary infection.

The four students were advised to have immediate sanatorium treatment. Three of the students entered a sanatorium within a few weeks. The fourth, because of religious prejudice on the part of the mother, was not permitted to take sanatorium treatment. She was excluded from school and numerous unsuccessful attempts were made by the public health nurse of the city to induce the mother to change her mind and permit the girl to enter a sanatorium. At the end of six months, the girl had lost some fifteen pounds in weight and had a productive cough with profuse expectoration. Still the mother would not yield to urgent entreaties on the part of teachers and nurses. Finally, the girl was sent to Chicago and placed under the supervision of a distant relative who was an irregular practitioner. She died a few months later. The three schoolmates who accepted sanatorium treatment all recovered and have continued well up to the present time.

It is interesting to note that a similar clinic has been held in this high school in a city of 15,000 inhabitants annually since the first one was held in the fall of 1931.

Since 1931 similar clinics have been carried on widely in other Wisconsin high schools. Up to the present time, close to 140,000 individuals have been tuberculin tested by the medical department of the Wisconsin Anti-Tuberculosis Association. Not all of those receiving the test were high school students. Sometimes the public health nurse brought in grade pupils from families who had had a death from tuberculosis or a member of the family in the sanatorium. In many cases where two or more children of one family were found to be reactors, the parents or older brothers or sisters who had finished school came in for the test.

Whenever a second clinic was held in a high school or teachers' college, new students and non-reactors were tested. These clinics were not ideal in that it was not usually possible to return to the high school and repeat the test with a milligram of tuberculin when the tenth of a milligram produced no reaction. It is interesting to recall, however, that following the publicity given to the clinics held in 1932 and 1933, the demand for similar clinics became so great that six members of the medical department of the Wisconsin Anti-Tuberculosis Association, together with a staff of nurses and social workers, were unable to hold clinics as fast as high schools requested them.

In 1933, the late Dr. R. H. Stiehm of the medical staff of the Wisconsin Anti-Tuberculosis Association was loaned to the University of Wisconsin for six weeks to test newly enrolled students. The results of this work were so impressive that he was taken over as a member of the university faculty. The program inaugurated by him has been continued since and has won wide recognition. The effectiveness of this program from a case-finding viewpoint may be seen from the following facts:

During the 14-year period 1919-1933, before tuberculin testing, an average of 10 cases of pulmonary tuberculosis were found each year among University of Wisconsin students.

During the year 1933-34, when students were tuberculin tested, as part of their routine examination, with x-rays, physical examinations, and careful medical histories of reactors, 43 cases were found, or a 330 per cent increase.

Seventeen students were advised to withdraw from school, compared with an average of four in previous years, twelve of whom entered sanatoria.

Following these clinics, the campaign for tuberculin testing received marked impetus, and at the present time many physicians and health officers are tuberculin testing regularly. It is quite impossible to give even an approxi-

mate number of those having received an intradermal test in the state of Wisconsin. When the clinics were first held, there were a considerable number of vacant beds in the county sanatoria of the state and it often required time and patience on the part of the doctor, or the public health nurse, to induce the patient with active tubercuolsis to accept sanatorium care. The common objection offered by the layman was that most patients who went to the sanatorium died. The average layman did not realize that the death was due in most cases to neglect of early tuberculosis and lack of sanatorium treatment. It was not long until most vacant beds were occupied and additional beds were being provided either in new institutions or in addition to already existing facilities.

Many family physicians, who were fortunate enough to have x-ray equipment, felt they were not competent to read chest x-rays, and so the custom grew of sending them to the Wisconsin Anti-Tuberculosis Association for interpretation. This always brought a reasonably prompt interpretation from a member of the medical staff and, in many cases, suggestions as to how the chest x-rays might be improved. During the past five years, over 30,000 referred films have been read and interpreted at

the office of the association. In many cases when x-rays coming from a certain physician were poor in quality, a member of the medical staff called on him to help improve his film-taking technic.

In 1937 the association received a gift of \$25,000 and this money was used in part to purchase a 35 mm. x-ray unit which has been used in a large number of clinics where mass x-raying seemed desirable without a tuberculin test. About the same time the state health department purchased a 35 mm. unit and a 4x5 x-ray machine, and the Milwaukee health department procured a similar unit. These four units have screened scores of thousands of cases during the past three years. The work has been done to a considerable extent in large industrial plants where a preliminary tuberculin test did not seem advisable. A shortage of physicians and the desire to reach large war industries is to a considerable extent responsible for the present change in policy.

Has the pendulum swung too far? It is my opinion that the present tendency to neglect the tuberculin test is unfortunate and that we will ultimately return to the Mantoux test, the most certain method of locating early cases of clinical tuberculosis.

# A Survey of Tuberculosis Observed at Freeman Clinic 1934-1944, and Related Statistics

Guy L. Hacker, M.D. Dallas, Texas

THE purpose of this paper is to determine, from all available local data, whether Dallas is one of the areas where a tubercuolsis survey would be worthwhile. The United States Public Health Service, through an act of Congress, is in the early process of inaugurating a nationwide tuberculosis control program. The original bill calls for the expenditure of ten million dollars. The first funds available for the use of the states will probably occur in January 1945. The state board of health plans to purchase a number of photofluorographic units with the general plan in mind of using these in areas of the state where the problem is acute. Coordinated with the case-finding project will be the extensive education and follow-up facilities. The plan of necessity will have to be worked out with the medical profession and the limitations devised by them agreed

During the past ten years, there have been 18,018 admissions to the Freeman clinic. Each patient had a tuberculin test on admission. All reactors were referred to the tuberculosis department of the clinic for study. A dose of 0.1 milligram of old tuberculin was used for the initial test. Readings were made at the end of forty-eight hours (preferably at 72 or 96 hours). A reaction was recorded if the skin showed an area of redness at least 5 millimeters in diameter, with some induration. In sus-

picious cases where the reaction was not definite, a 1/100 dilution and occasionally a 1/10 dilution were used. The tests were administered by a technician and interpreted by a physician. Old tuberculin made by the large biological companies was used until the last few months. We have recently obtained some old tuberculin from the Saranac Laboratory in New York. This is of standard potency. Dilutions are made with a buffered phenolized solution which remains stable, even in a 1/1000 dilution, over a long period of time.

X-rays were made of the chest of every reactor. If under five years of age, x-rays were repeated on the average of every six months. For those five to ten years of age, films were taken every two or three years, and after eleven years, they were checked at least once a year.

#### SPECIFICITY OF THE TUBERCULIN TEST

The intradermal tuberculin test is the most specific test we have. A characteristic reaction means the patient has definitely been infected with tubercle bacilli. A failure to react to the test, if properly made and interpreted, and, if necessary, carried down through a 1/10 dilution, rules out tuberculosis in children, except in very rare cases. During the past ten years, I have not seen a proven case of tuberculosis in which the 1/10 dilution did not produce a reaction.

TABLE 1
Percent of Patients Who Were Reactors to Tuberculin Test
st Freeman Clinic ~ 1934-1944

			Percent
	Number	Resctars	Reactors
Total admissions	810.81	2.225	12.35
White	11.318	1.303	11.55
Mexican	1.049	218	21 73
Negra	1.651	689	12 19
Total admissions, 1940	2,924	333	11.38
Total admissions, 1941	3,102	325	20.34
Total admissions, 1942	2.167	287	13.24
Total admissions, 1943	1,943	273	14.05
High school students tested			
mare 1939 (cit)	3,681	820	22,00

Table I shows the number of admissions to the clinic during the past ten years and the percentage of reactors. Children are admitted to the clinic up to puberty, the average being six to eight years of age. The Mexican admissions showed about twice as many reactors as the white. The reactors in negroes is surprisingly low as compared to the white. One explanation is that the negro dies more rapidly than the white and does not have as much opportunity to disseminate the infection. Another possible explanation is that not enough emphasis on induration was placed by the interpreter. Obviously, in negroes, one must depend on induration rather than tedness in interpreting the test.

#### BASIS FOR MAKING A DIAGNOSIS OF ACTIVE TUBERCULOSIS

- 1. Tuberculin reaction.
- 2. Positive sputum or stomach washing.
- 3. X-ray shadow.
- Persistent elevation of temperature (temperature recorded four times daily [rectal] for two weeks].
- 5. Loss of weight.
- 6. Cough.
- 7. Sedimentation rate (started only recently).

## BASIS FOR DIAGNOSIS OF A REACTOR AS INACTIVE

- 1. Essentially negative x-ray.
- 2. Negative sputum.
- 3. Normal temperature.
- 4. Good progress clinically.
- 5. Sedimentation rate (started only recently).

A sputum examination was made on all patients with a productive cough. Stomach washings were made on infants who were reactors. Either guinea pig inoculation or a culture was made. It has been suggested by some investigators that a more rapid method would be to inoculate non-infected guinea pigs and follow up with a tuberculin test in three or four weeks. The animal should react at the end of this time if the injected material contained tubercle bacilli.

#### TABLE 2

	Classification of Reactors	
1. 2	Minimal primary tuberculosis Tracheobronchial lymphadentis Miliary tuberculosis Tuberculosis of vertebra	7
3.	Miliaty tuberculosis	
4	Tuberculosis of vertebra	
٩.	Tuberculous meningins	
6	Tuberculous of lungs, far advanced	
7	Tuberculosis of lungs, moderately advanced	
8.	Tuberculous pleuritis	
9.	Tuberculous pericarditis	
10	Tuberrulous peritonins	
11	Lung abscess	
12.	Tuberculosis of cervical lymph nodes	
11.	Tuberculosis of thyroid gland	
14.	Tuberculosis of hip joint	
ìš.	Psoas abscess	

Table 2 shows the classification of the various reactors. The minimal primary tuberculosis group showed no significant change in the x-ray. The tracheobronchial lymphadenitis group showed some involvement of the hilar regions and usually a minimal involvement in the parenchyma. An occasional Ghon's tubercle was present. Practically all of these two groups were, as far as we could determine, inactive and were allowed to go to school, nursery, etc. It is interesting to note that only three were diagnosed as suberculous pleuritis. I can remember seeing only one case in the last ten years with an effusion severe enough to require aspiration. Abscess of the lung is rare in children-only three of our cases were so diagnosed. These probably were of the reinfection type. Tuberculosis of the cervical lymph nodes does not occur now as frequently as in the past-only two cases were thus diagnosed. TARRES

IADLE 3			
ACTIVE CASES	White	Mexican	Negro
Acuve on admission	14	10	2
Becoming acuve during 10 years	,	2	13
Becoming inactive during 10 years	9	7	3
CONTACTS.			
Parents	180	26	52
Grandparents	37	4	,
Others not known ISOLATION.	130	47	8 t 1
Home	2	5	9
Sanatorium	12	3	1
Deaths	3	ī	í

Table 3 emphasizes the small percentage of active cases observed. Unfortunately, a thorough history of contacts was not obtained on all the reactors. In the younger group the parents or grandparents were found to be the infectors in a large percent of the cases. In the older group the contacts were not known in many of the reactors. The death rate is maccurate due to the fact we were unable to follow up our cases thoroughly.

A list of our reactors is routinely given to the Dallas Tubercuolsis association. An examination of all close contacts is supposed to be made. I feel that one of the most important results of tuberculin testing in children is the clue it gives us in detecting active tuberculosis in the adult contacts. Oftentimes these adult contacts are in the early stages of the disease, most of them not suspecting they have the disease. It is important to isolate these active adults from the children. Children tolerate the first infection very well, but too often succumb to tepeated overwhelming reinfection.

Our present needs:

 A state law requiring all active cases of tuberculosis to be isolated. (I understand we will have some legislation in the near future, which will help enforce isolation of our active cases).

 Mote hospital beds for active cases. (It is planned to have regional hospitals scattered over the state for the care of active tuberculosis. Dallas would be an ideal site for such an institution).

3. A case-finding program.

The first two needs would of necessity have to be provided for before a lot could be accomplished with a case-finding program. The question arises as to what is the best method of case finding. There is a difference of opinion among various investigators.

Myers of Minneapolis and Stewart of New Orleans

believe the most practical and thorough way is to do mass tuberculin testing of the general population. Since a tuberculin test, if properly done and interpreted is one of the most reliable tests we have, and since there is only a one per cent increase or less per year in reactors in some parts of the United States, this method would eliminate taking x-rays on a large percentage of the people. (Certain areas have a much higher percentage of reactors than this). For instance, roughly 30 per cent of 30-year-old people would be reactors. Therefore, only 30 per cent of this age group would need to be x-rayed to find what per cent were active. A tuberculin test, carried down through 1/1000 and 1/100 dilutions, which does not produce a reaction, rules out tuberculosis in children and active tuberculosis in adults in practically 90 to 100 per cent of the cases. Tuberculin reactors should be x-rayed annually after puberty. This often enables us to detect the location of lesions at a stage when they can be treated successfully. This method also makes people more tuberculosis-conscious. At the present time a good percentage of patients do not consult physicians until they have symptoms of the disease beyond the stage at which medical treatment can be of much help. This accounts in part for the high death rate in various sanatoriums.

Other methods suggested are examination of all contacts of active cases of tuberculosis. This detects a good number of cases in the immediate environment but fails to find cases from other contacts. All high school students should have the tuberculin test. The non-reactors should be retested annually. The reactors should have x-ray inspection of the chest annually.

All maids, food handlers, school teachers, and any other group coming in close contact with the public should have annual x-ray inspection of the chest. Tuberculin testing of a large number of school children in Beaumont showed that children coming from homes in

which maids were employed had a much higher percentage of tuberculin reactors than those without maids.

	TABI	Æ 4		
	Total Number	——R	ate	Deaths from TB Under
	of Deaths (Tex.)	Texas	U.S.	5 Years (Tex.)
1934	4,020	66.8%	56.7%	121
1935	4,202	69.1	55.1	118
1936	4.374	71.1	55.9	110
1937	4,289	69.0	53.8	131
1938	4,129	65.8	49.1	121
1939	3,911	61.6	47.1	118
1940	3,797	59.1	45.9	114
1941	3,684	56.0	44.4	îží
1942	3,568	53.2		129
1943	3,287	47.2		96
1744				

Table 4 shows the death rate from tuberculosis in Texas compared with the general mortality in the United States.

In the various large cities of the state the death rate in the Mexican race is ten times as high, and the negro rate twice as high as the white.

In spite of the justifiable gratification with which we may regard the great decrease in the total mortality from the disease in the last forty years, it is nevertheless very important not to lose sight of the disturbing fact that tuberculosis is still by far the most common cause of death in that valuable age period between fifteen and forty-five. In the United States in 1940, tuberculosis was responsible for 18.6 per cent of all deaths in persons between 15 and 24 years of age, and for 14.3 per cent of all deaths among individuals between 25 and 44 years of age.

The disease that still kills more than twice as many individuals as any other single cause of death during this particularly productive and enjoyable period of the life-span can hardly be jubilantly regarded as "nearly conquered."

(The author wishes to express his sincere appreciation of the work done by Miss Mary Abbie Jack and Miss Mary Kirkland in compiling statistics and analyzing the 18,000 admissions to the clinic.)

# Continuation of the Mantoux Program in Rural Minnesota

Lewis S. Jordan, M.D. Granite Falls, Minnesota

IN the issue of the Journal-Lancet of October, 1942, there was a summary of a temperat Mantour program in tural Minnesota as conducted by Riverside Sanatorium, at Granite Falls. Further work has been done with pleasing results. In the continuation of this program of school testing which has been followed up in the four counties of Riverside sanatorium Issuita—Chippewa, Renville, Lar qui Parle, and Yellow Meditine—no positive reactors were found in the most return servers in ten schools. The above four counties comprise an area of approximately 3200 square miles located in the south central and western portion of Minnesota. The Mantoux resting program was commenced in 1950, and

has been continued periodically ever since. The same reclinic and the same scale of Saranac Lake O.T. has been used constantly, the climion being 1:1000. A total of some 38,000 school children have been tested over this period of from 1930 to 1945. The tests have been repeated in the same communities, children from the same homes, and under similar conditions such time. Of a total of 18387 children smolled in the schools in the following report, 1839 per cent of them were found to react on the first survey conditioned in 1930. In the same schools in the 1944 survey, the introduction to 3.4 per cent.

In the following summary of the results, only the totals are given of those schools which we have techecked routinely during this period of observation. The scale used in judging a tuberculin reaction was the National Tuberculosis Association standard. The schools listed below show the indicated amount of drop in percentage of reactors in the first and last year in which they have been tested. Routine testing has been followed in most cases annually, or biennially, but figures of intervening years are not included as they have been previously published. In certain schools, due to emergency restrictions of material and help, since 1942, only the 1st, 9th, 10th, and 12th grades were tested.

		Percent
School	Year	Reactors
Bellingham	1935 1944	7.7 0.
Bird Island (Parochial)	1932 1944	25.7 0,
Basd	1931 1944	15.6
Clara City (Parochial)	1934 1944	30.5
Clara City (Public)	1934	11.6
Fairfax (Patochial)	1934 1944	6.9
Milan	1930 1944	186 0.
Olissa (Parochial)	1934 1944	14 4 0.
Nassau	1937 1944	8 8 0.
Madison (Parochial)	1940 1944	8 I
Wood Lake	1930 1944	8 6 5.
Montevideo	1934 1944	13.6 6.5
Renville	1934 1944	7.4 4.9
Echo	1931 1944	10.8
Granite Falls	1931 1944	9.3 6.3
Hanley Falls	1932 1944	11 7
Marietta	1931 1944	17.9 1.6
Clarkfield	1933 1944	9 6 2.3
Buffalo Lake	1931 1944	12.8 5.3
Olivia	1934 1944	11.5
Morton	1934 1944	13.6 2.9
Franklin	1934 1944	12 2 3 5
Faiefax	1934 1944	21.3 2
Madison	1940 1944	8 1 4 1
Canby	1939 1944	4 4 3 3
Yellow Medicine County Rurals	1935 1944	8,2 9
Chippewa County Rurals	1944	2.2
Lac qui Parle County Rurals	1944	.9
Renville County Rurals	1944	42
Schools not previously tested.  Hector Maynard Danube	1944 1944 1944	2 1 1 7 7 3

The foregoing schools in this report were picked from some 250 schools tested in our district, which included rural schools. The total decrease in percentage in all schools tested is shown clearly by the following comparison:

Percentage of tuberculin reactors, first test-13.9. Percentage of tuberculin reactors, last test-3.4.

This is a 75.5 per cent reduction in the incident of reactors in our schools. We attribute this drop in the percentage to the following factors:

following factors:

1. Educational, in order to gain cooperation.

a) Talks to achools, parent-teacher organizations, farm bureau groups, civic bodies, and school board; b) demonstrations and literature to

both parents and pupils in every school.

2. Follow-up field nurse service. a) Roentgenographs of chests of all tuberculin reactors; b) careful investigations of home conditions and chest toentgenographs of any suspects or other suspected contacts; c) a careful history of any possible contacts; that may have been broken previous to our entry into the field.

3. Follow-up of all reactors in from three months to a year with a second x-ray. Advise of yearly x-ray check-up of all reactors.

4. Break all concacts with a known case of pulmonary tuber-culosus by admitting open case to the sanatorium whenever possible, where control can be instituted. If this is not possible, to place any children or young adults in another home away from possible contact with the open case. Instructions to prevent spread of disease.

5. Testing and x-raying the tuberculin reactors of all school personnel to include teachers, bus drivers, cooks, janitors, and

office employees.

As has been shown in the foregoing table of results, our tural schools have dropped from 8 2 tuberculin reactors to 21 per cent. This is for the whole group of 106 rural schools in the four counties, in which 2,768 children were tested. There is a definite difference in the rate of decrease of the incidence of infection shown when we compare our tural schools with the combined schools of our larger towns and small cities. In these latter, there has been a drop of from about 13 5 per cent to 6 5 per cent. This difference can be attributed to the fart that in the larger towns and smaller cities, it is much harder to locate and isolate contacts, open cases of tuberculosis, than it is in the tural districts. There too exists the fact that the average child's sphere of possible infection is mainfold greater in cities and larger towns than is that of those who live in the country and artend rural schools.

Bearing in mind that most of our cases of active pulmonary tuberculosis in years to come will develop from the group of school children who are reactors to the tuberculin test today, we feel that it is important to stress that all such reactors should be carefully watched, x-rayed annually, the disease be located early, and wherever possible, the source of infection traced to prevent further spread of the disease. In view of the simplicity of repeated Mantoux testing as a means for searching out those who have already become infected, let us continue the work with increased ardor and let no one who calls himself a physician be guilty of the refusal to use the simple weapons which we have in our hands to fight and control tuberculosis. Those weapons are the tuberculin test and the x-ray. As an economy measure in areas where there is a low percentage of tuberculin reactors we feel that the tuberculin test should come first, and the x-ray inspection of the chest should be limited to the reactors, rather than to attempt a mass x-ray program. When an individual reacts to tuberculin two important facts are immediately established: 1) The individual is at least a potential case of chinical tuberculosis; and 2) there has been a source of infection which may be sought among contacts

The fact that an individual reacts to tuberculin immediately acouses the patient's interest in tuberculoss and he desires facts concerning the potentialities of the infection. The logic of periodic examinations, including x-ray film inspection of the chest, becomes obvious, whereas, if only an x-ray film inspection is made of the chest and is reported normal, its often exceedingly difficult to convince the individual that subsequent periodic examinations are indicated. To us it seems far better to concentrate on the small percentage of tuberculin reactors where potential clinical tuberculosis exists than to devote time and energy to making x-ray inspections of the much higher percentage in whom there is no possibility of finding clinical tuberculosis.

## An Unusual Case of Primary Carcinoma of the Liver Associated with Diabetes Mellitus, Pulmonary Tuberculosis and Tuberculous Empyema

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HIS is a report of an unusual case of primary carcinoma of the liver, associated with diabetes and far advanced pulmonary tuberculosis. The patient was a fifty-eight year old white male of Scandinavian extraction. His occupation was that of a fireman. His father was said to have died at the age of sixty-two of a ruptured appendix; his mother at the age of seventy-six of a stroke. The patient had three sisters, all living and well. There were no brothers. The patient was not married.

Previous to his admission to the North Dakota State Tuberculosis Sanatorium, the patient had experienced influenza in 1919, and had had diabetes since 1938. Otherwise there were no other pertinent findings in the past history, except an alleged fracture of the middle right ribs two years previous to admission.

The patient was admitted to the sanatorium October 23, 1943. The chief complaints were loss of weight of about fifteen pounds during the last two months, and repeated pulmonary hemorrhages one month previous to admission.

The patient stated that he had been perfectly well in the fall of 1938. At that time, he was admitted to a local hospital because of headaches, a "plugged-up" feeling in his nose, low grade fever, and chills. The diagnosis was sinusitis. Following his discharge from the hospital after ten days, the patient noted the classical signs of diabetes: polyuria, polydipsia, polyphagia, frequency, and loss of weight. Also, he noted at this time a feeling of being sleepy all the time. The patient saw his local doctor, diabetes was diagnosed, and treatment was instituted, being solely that of a diet regulation. No insulin was used at this time.

Two months prior to his admission to the sanatorium, the patient noted continuing loss of weight from 180 pounds to 160 pounds, and therefore, in addition to his dietary regulation he was put on insulin, about 20 units of protamine twice a day. The patient improved, following this addition to his treatment. However, about one month previous to his admission, because he was continuing to lose weight and because he had three distinct pulmonary hemorrhages, one being about 8 ounces in amount, chest x-ray was taken, was diagnosed as pulmonary tuberculosis, and the patient was admitted to the sanatorium for treatment.

Physical examination showed the patient to be about 6 feet 1 inch (73 inches) in height, having an admission weight of 145 pounds as compared to his usual weight of about 200 pounds. Blood pressure was 140/90. In general appearance the patient was a well developed,

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very poorly nourished, senile white male, and had what was described as a very definite bilateral malar flush. The patient appeared acutely ill. Examination of the conjunctiva and sclera at that time did not reveal any findings of jaundice. When the patient was questioned about his peculiar gray pallor, he explained that he had always looked like that and had been questioned frequently about this point. During the examination of the lungs, there was a hemorrhage of about 3 ounces of bright red frothy blood. Examination, as well as previous x-rays, showed this to be coming from the left lung. Hence, the patient was taken to surgery and a left pneumothorax instituted in order to control the pulmonary hemorrhage. The introduction on October 26, 1943, of about 1,000 cc. of air in divided dosages was sufficient to partially control the pulmonary hemorrhages. Pneumothorax was continued on the left, and on January 20, 1944, left pneumonolysis was done in order to obtain a more satisfactory form of collapse of the left lung. At pneumonolysis, it was seen that there were numerous caseous areas in the partially collapsed upper lobe. Under direct thoracoscopic control, large heavy band adhesions were completely cauterized and severed, and it was seen that the collapse was greatly increased following this. The patient made an uneventful recovery from this

On March 10, 1944, the patient developed a tuberculous pleural effusion, and was aspirated. Thereafter the patient was frequently aspirated, and on April 10, one month later, there was a typical tuberculous empyema present. This pleural fluid was positive for tuberculosis by cultures. Blood agar plates for the presence of nontuberculous organisms were negative. The patient was continued to be aspirated at frequent intervals, usually at seven-day intervals. Treatment consisted of this frequent aspiration and the instillation of 5 per cent sulfathiazole suspension intrapleurally, which very definitely slowed down the growth of the tubercle bacillus intrapleurally. The patient was last aspirated September 15, 1944. Thereafter, the intrapleural space remained dry, and the tuberculous empyema was considered to be quiescent and inactive.

closed intrapleural pneumonolysis.‡

The patient's diabetes responded quickly to treatment. Because of the combination of pulmonary tuberculosis and diabetes, the patient was put on a high caloric, high carbohydrate diet, as follows: Calories, 2,000; carbohydrates, 200 grams; protein, 70 grams; fat, 100 grams. Diet was changed six months later to: Calories, 2,400; carbohydrates, 260 grams; protein, 92 grams; fat, 120 grams. The patient was soon controlled with a dosage of protamine zinc insulin, units 42, and regular insulin,

Dr. W. L. Wallbank, superintendent, performed this operation.

units 32, in the mornings. Under this regimen the patient gained in weight from an admission weight to the last weight recorded at 159 pounds.

The only pertinent point in retrospect of the patient's clinical condition was that he seemed to do very well for an elderly patient with far-advanced pulmonary tuberculosis complicated by hemorrhage and empyema, and also complicated by diabetes. It was noted by his roommates and by myself that he was particularly slow in his reaction time, and demonstrated a rather parkinsonian type of behavior. It was a well appreciated joke that he slept at long intervals, far more than it would seem necessary.

The patient's sputum, which had been positive upon admission, became negative eight months after admission and remained so from that time on.

The patient was perfectly well, had been worked up to full bathroom privileges, was going to the theater and to church, when suddenly on November 22, 1944, the patient complained of being sick to his stomach. He had been visiting patients in the various parts of the infirmary when he suddenly felt like vomiting, went to the bathroom, and there was a large emesis of undigested food. This was at 9:30 P.M. At first the patient insisted that the doctor not be called, and he was seen at 11:00 P.M., complaining of pain in the upper abdomen. The temperature at this time was 98.4°, the pulse 84. White blood count was 8,450. Blood pressure was 150/90. Fluoroscopic examination was satisfactory; the chest was in no way changed on fluoroscopic examination, nor were there any intra-peritoneal pockets of air present. On abdominal examination, there was epigastric tenderness, although the abdomen was perfectly soft. Rectal examination was normal. Peristalsis was heard and was normal, although slightly increased. The patient at this time had an acute gastritis, etiology undetermined. Considered as an unlikely possibility was that of a peptic ulcer rupture. The patient was given sodium amytal, grains 3, and was placed under observation.

At 12:50 A.M., the patient was seen again. At this time he was complaining of terrific pain in the abdomen. He was vomiting gastric contents. The abdomen, after the patient quieted down, was still perfectly soft, although the patient complained of tenderness in the epigastric region. White blood count was repeated, and was the same as on the previous count. Differential was normal. Urinalysis was normal. The patient was re-examined at 5:00 A.M. At this time the blood count was 7,500, but polymorphonuclear count was 93 per cent. Urine now showed 75 milligrams of albumen, but was otherwise normal. Temperature was 97.8° by rectum. Examination showed that the abdomen was tender but soft. Peristalsis was heard, but was exaggerated. The patient was given 1,000 cc. of 5 per cent glucose in normal saline intravenously, this amount being covered by 22 units of regular insulin instituted through the tubing. At 7:00

A.M., the patient was sleeping and his condition seemed to be improved, although there was much moaning and groaning in his sleep. X-rays of the chest and abdomen taken at 4:50 A.M. that morning did not show any intraperitoneal air nor any change in the x-ray picture of the chest. At 10:00 A.M. that morning, the patient complained of soreness throughout the entire abdomen, although he could not localize the pain. At 1:00 P.M., he complained of a severe pain in the epigastrium. This was followed by a rise of temperature to 100.8° rectally at 2:00 P.M., by emesis of small amounts of brownish stained mucous contents. At 2:30 P.M., the patient experienced a slight chill and was becoming very restless. The pulse was 118, respirations 48 per minute. At 5:15 that afternoon, 5 per cent dextrose solution in normal saline was begun, this covered by regular insulin, units 40. Two hours later the patient complained of being very warm, seemed to be irrational, attempted to get out of bed, his color became very poor, respirations very labored (described as gurgling) and at 7:40 P.M., the patient expired.

Autopsy was done, and the only findings of note in addition to the collapsed left lung were many scattered yellow-white hard circular masses. These were found exclusively in the liver in all lobes. A very careful search for a primary was made, but none was found. Examination of sections by Dr. A. K. Saiki of the University of North Dakota Department of Bacteriology and Pathology showed adenocarcinoma, grade II. Diagnosis was that of a primary carcinoma of the liver, of bile duct oriein.

This case is being reported because of the fact that the patient experienced no symptoms of a primary carcinoma of the liver until twenty-three hours before his death. He was perfectly well, and had apparently overcome his pulmonary tuberculosis with its complications, and was also controlling his diabetes. The patient was gaining weight and strength, until initiation of his terminal illness. At no time was jaundice noted by any observer until at autopsy it was noted very definitely that the sclera were jaundiced. The sudden terminal event was undoubtedly due to pressure on the bile duct and to terminal right cardiac failure.

#### SUMMARY

An unusual case of prunary carcinoma of the liver was reported. This case was not diagnosed until autopsy, and there were no symptoms referable to carcinoma of the liver until twenty-three hours before the patient's death. The patient must have had this primary carcinoma of the liver for at least a year, and still he successfully overcame pulmonary tuberculosis, far advanced, which had been complicated by pulmonary hemorrhages and tuberculous empyema. Also, the patient successfully controlled a moderately severe case of diabetes mellitus at the same time.

## The Control and Eradication of Animal Tuberculosis

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T this time all of the counties in the United States, all of Puerto Rico and the Virgin Islands, are included in the modified tuberculosis-free area, meaning that the incidence of this disease in cattle is less than one-half of one per cent. In fact, it is now just about two-tenths of one per cent, and in many states there is hardly any.

It is important that the cattle owners and others interested pay particular attention to checking up on the work in order to hold the ground already gained. It has been very difficult to meet this task due to conditions brought about by World War II. Several hundred federal and state veterinarians who were devoting all or part of their time to tuberculin testing and work in connection with Bang's disease of cattle, joined the armed forces and most of them are still in the service.

Tuberculin has been used in this country to diagnose tuberculosis in cattle since its discovery by Koch in 1890. In the early work, owners of cattle would volunteer to have their herds tested, but in a few years there were requirements in various parts of the country calling for the tuberculin testing of all dairy cows supplying milk to towns and municipalities. Dr. J. Arthur Myers has brought out in his book, Man's Greatest Victory Over Tuberculosis, some interesting facts in connection with the difficulties encountered in convincing people in certain communities of the importance of the eradication of tuberculosis in livestock. In some localities this opposition was quite highly organized and it was necessary to resort to the courts in order to proceed with the work. However, a great majority of the people were in favor of it after they understood what it was intended to accomplish.

The goal under the federal-state cooperative plan was to include all counties in the modified accredited area; it was possible to place the last two counties in California, the last state to be accredited, in this status November 1, 1940. Altogether about 271,000,000 tuberculin tests were made of cattle in the official cooperative work during the fiscal years 1917-1944. Of course, many of these were retests. The total number of reactors removed for slaughter during that time was about 3,800,000, the largest number being in the states where there were extensive dairy interests.

Splendid cooperation has been received from the state livestock sanitary officials and many other interested persons, including Professor H. R. Smith, now general manager, National Live Stock Loss Prevention Board, formerly livestock commissioner National Live Stock Exchange. Mr. Smith has been of great assistance in the work; he has written and published much in regard to the eradication of tuberculosis in cattle and the importance of eradicating tuberculosis from swine and poultry.

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TUBERCULIN IMPROVED BY RESEARCH

During all of this time the research workers were carefully studying different phases of the disease, with special interest in improving the tuberculin. We owe much to the late Dr. Marion Dorset and his co-workers in this Bureau for what has been accomplished in the preparation of an improved tuberculin. The field forces co-operated with the research workers in order that a study could be made of the action of different tuberculins in testing cattle under natural conditions. A full report of the results, as well as other work with different dilutions of tuberculin, is contained in a paper by Dr. Dorset which appeared in the Journal of the American Veterinary Medical Association, 1934, LXXXIV N.S., Vol. 37, No. 3, pp. 439-456.

The tuberculin that has been used for the last four-teen years is prepared by using a synthetic medium. It was only through the ability to prepare large quantities of it that it was possible to give the tuberculin test to over 25,000,000 cattle in the fiscal year 1935 in the federal-state cooperative program. A large federal appropriation was made by Congress in 1934 for this work, and also for eradicating Bang's disease in cattle. At that time it was not necessary for the states to make payments in order that the owners might receive federal indemnity, making it possible to proceed without delay in many parts of the country where veterinarians were available.

The first annual appropriation by Congress for carrying on the eradication of tuberculosis in cattle in a cooperative manner, was made March 4, 1917, and amounted to \$75,000.00. This was greatly increased within a few years. Expenditures for this work reached the peak in the fiscal year 1935 when the federal expenditures alone were about \$13,000,000.00 for operating expenses and indemnity. The cooperating states and counties used about \$9,000,000.00 for the same purpose that year. Since that time the expenditures, have been considerably reduced; the total federal expenditures for operating expenses and indemnity are now about \$1,350,000.00 annually, and the state about \$2,900,000.00.

## ECONOMIC IMPORTANCE OF TUBERCULOSIS ERADICATION

The economic importance of eradicating this disease in livestock is great. If the work had not been taken up and carried on to the extent that it has been, the losses due to condemnation of cattle and hogs on account of tuberculosis would today be many times what they were in the past because the incidence of the disease was increasing; consequently, our present meat supply would have been much smaller than it is.

At establishments operating under federal supervision during the year ending June 30, 1944, about 12,900,000 cattle were slaughtered (not including reactors to a

tuberculin test) and only 5,778 showed any evidence of tuberculosis, 1,435 considered unfit for food. Similar statistics for 1917 show that about 9,000,000 cattle were slaughtered, over 195,000 showed evidence of tuberculosis, and about 40,000 were condemned as unfit for food.

In the case of swine slaughtered under federal supervision, the records indicate that during the fiscal year 1944, about 75,000,000 hogs were killed and tuberculosis was found, mostly to a slight extent, in about 5,185,000. The total number of carcasses condemned was about 16,000.

The aid furnished by the meat-inspection service, both federal and local, has been very helpful in tuberculosis-eradication work, and is especially so at this time. Cattle and hogs found on postmortem examination to be affected with tuberculosis are reported to officials of this bureau; in many cases it is possible to trace their origin and take the necessary measures to eradicate the disease from the infected premises.

#### Causes of Cases with No Visible Lesions

Much research work has been conducted by both state and federal workers to determine some of the reasons why gross lesions of tuberculosis are not found in all cases where a diagnosis of ruberculosis is made through the use of tuberculin. There are a number of such reasons brought out in a very interesting article by Dr. A. B. Crawford of the Animal Disease Station of the Bureau at Beltsville, Maryland, which was published in the Journal of the American Veterinary Medical Association November 1936. Dr. Crawford made an extensive study of this subject and his work is a valuable contribution to the program.

In the central and north central states there is a considerable amount of avian tuberculosis which spreads to the hogs and sometimes to the cattle. This causes the cattle to become allergic to tuberculin although no visible lesions are produced in them by the avian type. This is, of course, confusing to the operators in the field and is one of the important reasons for eliminating the avian type of the disease. Although much has been accomplished in controlling it, there is much more to be done and its practical eradication should be accomplished in time. The veterinarians who are tuberculin testing cattle in the states where most of the avian tuberculosis is located are helping on this program by advising flock owners how to best handle their flocks in order to rid their premises of the disease.

#### BOVINE TUBERCULOSIS IN RELATION TO HUMAN TUBERCULOSIS

We know there has been a marked reduction in the tuberculosis moreality of humans, and it is fair to assume that at least a part of this reduction has been due to the control and eradication of tuberculosis in cattle. Recently a brief report on the causes of crippling in children appeared in Everybody's Health, written by another good friend and helper in this work, Dr. D. C. Lochead of Rochester, Minnesota. He stated that in reviewing the situation with reference to the causes of crippling of children, only 1.29 per cent of the cases recently registered with the Section for Crippled Children of the Minnesota Division of Social Welfare are crippled as a result of tuberculosis; also that thirty years ago 75 per cent of the children at the Gillette State Hospital for Crippled Children were there because of tuberculosis of the bones and joints, but today there are virtually no cases of this type at the hospital.

One of the problems that still exists is that some human cases of pulmonary tuberculosis are caused by the bovine type of the germ. Only last year a veterinarian engaged in this work in New York State found that the disease had been spread to four herds of cattle by one person, who had originally contracted it from cattle. I Close cooperation between veterinarians engaged in eradicating this disease in cattle and persons in charge of tuberculosis sanitariums is desirable. Many times a knowledge of this type of tuberculosis with which a patient is infected might lead to the location of tuberculosis in cattle. It is gratifying to know that plans have been made by the United States Public Health Service to increase greatly the activities in connection with the eradication of human tuberculosis.

#### PLANS FOR THE FUTURE

It is the purpose of the cooperating officials in charge of tuberculosis eradication of livestock to have the work continued as much as necessary. This will mean applying approximately 9,000,000 tuberculin tests to cattle each year for several years and increasing the forces engaged in the eradication of tuberculosis in poultry and swine.

There should be a careful check-up on all reported cases of tuberculosis in cattle and hogs from the establishments where they are slaughtered.

Man a Source of Bovine Tuberculosis in Cattle, by F. J. Tice, The Cornell Veterinarian, October 1944

War always spotlights the dramatic role played by surgery and medicine. Less frequently does some unusual situation emphasize the important role played by preventive medicine as, for instance, when our troops landed in the Philippines. There they found the civilian population suffering woefully for lack of a preventive medicine program under Japanese domination. Santiation had deteriorated. Food was inadequate. Great numbers of the people were suffering from tropical ulers, yaws, intestinal diseases and vitamin deficiency diseases. They were endangered by cholera, smallpox and typhoid fever. With the return of our troops, preventive medicine is again being practiced. Carrying out plans prepared by the Civil Public Health Division of the Preventive Medicine Service, Office of The Surgeon General, sanitation is being restored, People are being immunized against diseases. Health offices have been re-established—(News Notes of Office of Surgeon General, Technical Information Div.).

## Tuberculosis Deaths Among Children\*

Ruth E. Boynton, M.S., M.D. Minneapolis, Minnesota

REAT progress has been made in the reduction of deaths from tuberculosis since the beginning of this century. For the United States as a whole, the tuberculosis death rate in 1940 was less than one fourth of that in 1900. In Minnesota the decline has been even greater. During this same period the tuberculosis death rate in children has been decreasing at a more rapid rate than that for the general population.

Data are available on tuberculosis deaths in children in Minnesota for a thirty-year period from 1915 to 1944. In a previous report <sup>1</sup> tuberculosis mortality in Minnesota children was analyzed through the year 1932. It seemed of interest to bring this study up to date and determine whether there has been a continuation of the declining death rate during the past twelve years.

Deaths occurring from tuberculosis in Minnesota in children under 15 years of age for the thirty-year period 1915-1944 inclusive were studied. The data were obtained from the tuberculosis mortality records of the Division of Preventable Diseases of the Minnesota Department of Health and mortality rates computed per 100,000 children in each age group. The method of estimating the population for each age group has been described previously.<sup>2</sup>

The deaths for each of the years were divided into age groups and classified according to the type of tuberculosis causing the death. Tuberculous meningitis, pulmonary tuberculosis and miliary tuberculosis continue to be the three leading types of tuberculosis causing death in children. Bone and joint tuberculosis and lymph node tuberculosis, while responsible for a small number of deaths in children, are relatively unimportant in this state.

## MORTALITY RATES FROM ALL FORMS OF TUBERCULOSIS

Table 1 shows the number of deaths and the death rate from all forms of tuberculosis in children in Minnesota by age groups for each year from 1915 to 1944, inclusive. In 1915 there were 260 deaths from tuberculosis in children under 15 years of age, compared to 26 in the year 1944.

Because of the small number of deaths now occurring for each age group, a comparison of mortality rates from year to year is of little value. The thirty-year period was therefore divided into six five-year periods, and the average mortality rate for each age group computed for each of the five years. These data are presented in Table 2. This shows a striking reduction in the mortality for all children under 15 years of age: from a rate of 34.1 for the years 1915-1919 to a rate of 3.9 for the years 1940-1944. This represents a reduction of 88 per cent during this period. While the reduction in each age group has been remarkable, the greatest reduction, that "From the Students' Health Service and the School of Public Health, University of Minnesota, Minnesota, Minnesota.

of 93 per cent, occurred in infants under one year of age, the rate being reduced from 130 in 1915-1919 to 9 in 1940-1944. For all ages in Minnesota the tuberculosis mortality rate has decreased from 103.1 in 1915-1919 to 27.5 in 1940-1944, a reduction of 73 per cent, a striking decline although not as great as occurred in children.

Table 3 presents the number of deaths from five types of tuberculosis in children under 15 years of age in Minnesota for the years 1915 to 1944. Tuberculous meningitis was responsible for 50 per cent of tuberculosis deaths of children under 15 years of age, and pulmonary tuberculosis, 37 per cent. Up to 5 years of age, tuberculous meningitis is the most common form of tuberculosis causing death in children. In the 10 to 15-year age group, two thirds of tuberculosis deaths were due to pulmonary tuberculosis. Miliary tuberculosis, likewise, was a more common cause of death in the younger children than in those over 10 years of age. It is probable that many of the deaths classified as tuberculous meningitis actually were miliary in type, as studies of autopsies on children dying of tuberculous meningitis frequently show an undiagnosed miliary tuberculosis.

The death rates from tuberculous meningitis in children under 15 years for the thirty-year period are shown in Table 4. For the first five-year period, the mortality rate for tuberculous meningitis in all children under 15 years was 15.7, while in the last five-year period the rate was 1.8, or a decrease of 88 per cent. For children under one year of age in whom the death rate from tuberculous meningitis formerly was higher than in any age group, the rate was reduced during this period from 74.2 to 4.7, or a reduction of 93 per cent. It is of interest that during the past ten years there has been a higher death rate from tuberculous meningitis in children between one and two years of age than in infants under one year.

Table 5 shows the mortality rates from pulmonary tuberculosis in children under 15 years of age. The death rate has been reduced from 10.8 in 1915-1919 to 0.9 in 1940-1944, or a reduction of 91 per cent. In children under one year the rate has been reduced 94 per cent, while in the 10- to 15-year-old group there has been a reduction of 92 per cent.

The mortality rates from miliary tuberculosis are presented in Table 6. With the exception of the group under one year of age, the number of deaths from miliary tuberculosis in children is so small that a comparison of the mortality rates means little. For all children under 15 years of age there was a reduction of 50 per cent during this thirty-year period, while for those under one year the reduction was 79 per cent.

#### Summary

In the year 1944 there were only 26 deaths from all forms of tuberculosis in children under 15 years of age

TABLE 1
Tuberculosis Deaths and Death Rates Among Children in Minnesota, 1915-1944

Year	To	tal	Toler	1 Year	1-2	Years	2-3	l'ears	3-4	Years	4-5	i cara	5-10	Years	10-15	Years
	Deaths	Nate*	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
1915	260	36 7	85	178 G	29	61.5	9	18 2	10	20 0	6	12 2	57	24 1	64	27 8
1914	275	38 3	68	140 4	22	48 2	33	65 5	12	23 7	11	22 0	48	20 0	81	34 7
1917	265	36 4	73	148 7	21	45 4	23	45 3	38	50.8	3	17.8	37	15 2	66	27 9
1918	263	36 2	57	113 8	30	63 6	28	54 1	13	24 9	17	33 0	52	21 0	72	29 8
1919	173	23 1	35	69.3	22	46 2	17	32 5	14	26 5	13	25 0	31	12 4	#1	35.8
1920	218	29 2	40	81 4	28	52 5	13	28 5	15	27 8	8	15 2	10	16 1	64	27 3
1921	159	21 0	23	58 3	25	48 I	3	168	12	21 8	2	3 7	36	14 2	46	19 3
1022	133	17.3	36	71 4	20	36 4	3	16 6	6	10 7	6	11 0	25	9 7	31	12 9
1923	190	24.5	16	90 3	34	61 2	14	23 5	13	23 0	13	23 6	28	10 7	42 -	17 3
1924	141	18 O	31	53 9	25	44 4	13	18 0	12	21 0	3	5 4	25	95	35	14 3
1925	132	16 6	38	72 5	6	10 5	7	12 4	7	12 1	6	10 6	26	97	42	17 0
1926	166	19 9	28	52 8	27	46 7	13	22 8	8	13 6	11	19 2	25	9 2	48	19 1
1927	126	16 2	26	51 8	15	27 8	17	31.5	6	13 2	4	7 4	19	7 2	39	13 8
1928	118	15 1	20	39 6	21	38 6	16	20 4	10	18 0	3	5 5	16	60	32	12 9
1929	108	13 7	20	39 3	32	21 9	11	20 1	12	21 4	5	9 1	15	3 6	33	13 2
1930	97	13 t	11	25 2	10	43 5	8	17 3	9	18 9	6	13 0	19	7.4	25	9.9
1931	68	9.1	1	91	10	22 7	3	10 7	- 5	12 5	3	5.1	15	5 8	25	98
1932	62	8 3	3	20 3	7	15 8	7	14 9	5	10 4	5	10 7	11	4 2	18	70
1933	65	8 6	11	24 7	12	27 6	3	64	5	10 1	4	80	13	5 0	17	6.6
1934	40	5 3	9	20 1	4	8.9	6	12 7	2	4.0	3	80	8	3 0	8	3 1
1935	52	6.8	9	20 0	ii	24 4	В	12 6	- 6	11 9	2	4.0	5	1.0	13	50
1936	39	5 1	5	11 0	5	11 0	3	6 2	5	99	1	20	12	4 5	8	3 0
1937	47	61	9	19 7	8	17 5	3	6 2	4	7.8	2	3 9	8	3 3	12	4.5
1938	43	51	7	14 8	2	1 2	3	6.0	3	5 8	1	19	11	4.0	16	4.9
1939	25	29	3	6.3	7	14 8	1	20	1	19	1	19	4	1 4	8	2 4
1940	35	4 7	3	6 8	5	10 7	3	6 4	2	44	3	6.7	8	3 6	11	3 8
1941	25	3 4	3	6.5	7	14 9	4	8 4	5	10 9	0	00	i	0.5	5	17
1942	28	3 7	3	6 4	5	10 6	2	4.2	2	4 3	2	4.4	5	2 2	9	3 1
1943	31	41	7	14 9	9	18 9	0	00	3	6 4	2	4 3	3	13	7	2 +
1944	26	3 4	3	10 6	7	14 5	2	41	1	2 1	t	2 2	4	18	6	2 0
Total Deaths:	3402		730		455		237		245		153		608		924	

<sup>\*</sup>Rates per hundred thousand of population in the age group

TABLE 2

Death Rates from Tuberculosis in Children in Minnesota by Fire Year Periods

Period	Years	Total	Under ! Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10~15 Years
1	1015-1919	34 1	130 0	53 B	43 1	29 2	22 0	18 5	27 4
2	1920-1924	21 8	72 2	48 1	21 1	20 9	11 8	12 0	18 2
3	1925-1929	16 3	51 2	29 1	23 2	15 7	10 4	7.5	15 8
4	1930-1934	5 3	19 9	23 6	12 4	11 2	8.8	5 1	7 3
5	1935~1939	5 2	14 6	14 4	6 6	7.5	2.7	3 0	4 6
6	1940-1944	3 9	90	13 9	4 6	8.2	3 5	19	2 6
and 1940-19	rease 1915-1919 44	69	93	74	89	81	84	90	91

TABLE 3
Deaths from Five Types of Tuberculosis in Children Under 15 Years of Age in Minnesota, 1915-1944

Type of Tuberculosis	Total	Under 1 Year	· 1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
Meningitis	50.3%* 1542	61.2% 408	62.2% 263	64.4% 170	60.0%	65.2% 90	53.3% 288	23.5% 191
Pulmonary .	37.0% 1133	24.1% 161	23.2% 98	23.1% 61	24.5% . 54	20.3% 28	35.0% 189	66.7% 542
Miliary	9.1% 280	12.3% 82	12.8% 54	9.5% 25	11.8% 26	10 1% 14	7.2% 39	4.9%
Lymph node	1,7% 52	1.9%	1.2%	1.5%	1.4%	2.2%	1.9% 10	1.7%
Bone and Joint	1.9% 58	0 4%	0.7%	1.5%	2.3%	2.2%	2.6% 14	3 2% 26
Total	100% 3065	667	423	264	220	138	540	813

<sup>\*</sup>Percentages represent the proportion of deaths in each age group caused by the particular type of tuberculosis.

TABLE 4
Mortality Rates from Tuberculous Meningitis in Children in Minnesota

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years -	10-15 Years
1	1915-1919	15.7	74.2	32.7	26.4	17.4	12.4	8.6	5.3
2	1920-1924	10.8	43.5	30.2	15.8	10.6	8.8	6 3	- 3.6
3	1925-1929	7.5	29 0	19.7	11.6	10,3	5,9	3.5	3.6
4	1930-1934	3.1	9.8	9.7	6 1	4,5	3.4	2.0	1.1
5	1935-1939	1.8	4.1	5.5	1.9	3.9	1.8	1.3	0.8
6	1940-1944	1.8	4.7	6 3	3.8	3.5	1.8	0.8	0.8
er cent decr	ease 1915-1919 14	89	94	81	86	80	85	91	85

TABLE 5
Mortality Rates from Pulmonary Tuberculosis in Children in Minnesota

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1919	10.8	27 7	8.9	8.2	5 7	2.7	5.5	16.3
2	1920-1924	6.5	14.8	8.5	2.8	5 0	1.8	3.0	9.7
3	1925-1929	5.1	9 5	6 5	5.9	3 1	1.2	2.1	8.7
4	1930-1934	3 9	6.6	8.7	4.3	4.3	2.1	1.8	5.0
5	1935-1939	2.4	5.0	5.1	2,5	. 17	1.2	1.3	2.8
6	1940-1944	0.9	1.8	2.1	0 0	0.4	0.0	0 6	1.2
er cent deci nd 1940-19	rease 1915-1919	92	94	76	100	93	100	89	92

TABLE 6
Mortality Rates from Miliary Tuberculosis in Children in Minnesota

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1919	1.8	10 0	3 3	1.6	2 4	0.4	0 6	1.2
2	1920-1924	1 6	7.8	3 2	18	2 2	11	0.6	1 0
3	1925-1929	1.1	4.9	3.3	2.5	1.3	1 0	0 3	0.4
4	1930-1934	0.8	2 2	3.7	1.8	1 5	1 7	0.5	0.1
. 5	1935-1939	0.8	5 7	2.0	11	0.9	0.0	0.4	0.2
6	1940-1944	0.9	2 1	5.5	0.8	1.7	1 3	0 4	0.2
Per cent decr	ease 1915-1919	50	79	+67	50	29	+225	33	83

in Minnesota. The mortality rate from tuberculosis in children has decreased so rapidly and reached such a low point that it must be near the irreducible minimum.

While the general mortality from tuberculosis in Minnesota has been reduced 73 per cent during the thirtyyear period from 1915 to 1944, in all children under 15 years of age the reduction has been 88 per cent and in infants under one year of age, 93 per cent during this same period.

Tuberculous meningitis continues to be the leading form of tuberculosis causing death in children, with pulmonary tuberculosis second in importance. The reduction in mortality rates during the thirty-year period of this study was greater for pulmonary tuberculosis than for any other form.

The continued decline in tuberculosis mortality in children is convincing evidence of the effectiveness of the tuberculosis control program which has been carried on in Minnesota.

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#### Tuberculosis of the Cervical Lymph Nodes

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#### GENERAL CONSIDERATIONS

UBERCULOSIS of the cervical lympth nodes develops as a result of the tuberculous lymphangitis draining a tuberculous focus in the upper respiratory tract. The primary respiratory focus may or · may not be recognized as tuberculous. The portals of entry for the tubercle bacillus in these cases usually are the palatine and pharyngeal tonsils, but, less commonly, the lymphangitis may arise from a tuberculous lesion in the pharynx, mouth, ear or nose.

Tuberculosis of the cervical lymph nodes, caused by the bovine type of tubercle bacillus, has almost disappeared in this country. This has been attributed to the program of tuberculin testing of cattle on a nationwide scale and the universal pasteurization of milk. The human type of tubercle bacillus is responsible for most of the cases observed in the past decade.

The disease develops most frequently in young adults and children but may occur at any age.

Primary (childhood) or secondary (adult or reinfection) pulmonary tuberculosis may already be present when the tuberculosis becomes apparent in the cervical lymph nodes and the upper respiratory tuberculous focus and lymph nodes probably represent a secondary complication of the pulmonary tuberculosis. In other cases, the lungs are uninvolved and the tuberculous lymph nodes are part of a primary complex involving the upper respiratory tract alone. However, one must always remember that primary pulmonary tuberculosis may exist without a gross tuberculosis lesion being demonstrable by roentgenogram. Occasionally pulmonary tuberculosis may develop subsequent to the glandular tuberculosis and Van Zwaluwenburg and Grabfield1 felt that the pulmonary infection developed by direct extension to the lung apices from the tonsils and cervical lymphatics. This view is not accepted generally.

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#### SYMPTOMS

Chronic or acute enlargement of the carotid lymph nodes, located near the superior border of the sternocleidomastoid muscle, usually is the earliest symptom. The superficial lymph nodes generally are infected first and the deep cervical nodes subsequently. The infection may remain localized in a single lymph node but, by the time the patient consults a physician, multiple nodes usually are involved. For a varying period of time, the nodes remain firm and the patient's chief complaint is the chronic, painless swelling. A cold abscess with fluctuation and tenderness may develop, if the disease continues to progress. Unless the pressure is relieved in some other way, the abscess eventually will rupture spontaneously with the formation of single or multiple sinuses. Havens2, analyzing 125 unselected cases of cervical suppurations, found 18 due to the breaking down of tuberculous lymph nodes.



Fig. 1. Massive tuberculosis of the superficial and deep carotid lymph nodes.

#### Diagnosis

The diagnosis may be difficult in the absence of pulmonary tuberculosis. Tuberculosis should be suspected whenever there is a chronic glandular swelling, especially if the enlargement is progressive and is larger than usually observed with chronic, non-specific inflammatory 'adenitis. A positive reaction to the tuberculin test will aid in making the correct diagnosis. Usually, a negative tuberculin reaction will eliminate tuberculosis as a diagnostic possibility, but a definite diagnosis cannot be made with finality on the evidence of a positive tuberculin test alone. If an abscess has formed, pus should be aspirated and examined for tubercle bacilli by smear, culture and guinea pig inoculation. A biopsy may be necessary, if the diagnosis cannot be established by other means. A roentgenogram of the chest should be taken in every case to determine the presence or absence of pulmonary tuberculosis. The roentgenogram should be repeated at least every six months, even if the initial study is negative. If a sinus has formed, the discharge should be studied bacteriologically, although tubercle bacilli may be difficult to demonstrate in the presence of chronic sinuses as they may be overgrown by the secondary invaders.



Fig. 2. Supraclavicular tuberculous lymph glands in multiple sinuses. This patient had no pulmonary tuberculosis. The tonsils and adenoids had been removed ten years prior to the onset of the glandular tuberculosis.

#### DIFFERENTIAL DIAGNOSIS

Tuberculous cervical lymphadenitis must be differentiated from acute and chronic non-specific lymphadenitis, syphilis, Hodgkin's disease, lymphosarcoma, lymphatic leukemia, benign lymphoma, glandular fever, thyroglossal and branchial cysts and secondary tumors. In acute inflammations of the cervical nodes, the glands are moderately enlarged, painful and tender to palpation.

Suppuration seldom occurs and the nodes usually recede as soon as the acute inflammation of the nose, throat or ear subsides. In chronic cervical lymphadenitis, the nodes are moderately enlarged, firm and homogeneous. Chronic sinusitis or chronic tonsillitis may be primary cause of the chronic lymphadenitis. Enlargement of the submental glands may occur secondary to a chancre of the lip and moderate, generalized lymph node enlargement often develops in the secondary stage of syphilis. Tertiary gummas of the cervical lymph nodes are exceedingly rare. The Wassermann or equivalent blood reaction is helpful but the diagnosis should not be made on that finding alone. Spirocheta pallida usually can be demonstrated in glands associated with primary or secondary syphilis. Hodgkin's disease occurs at any age but is most common in middle life. The cervical lymph node enlargement may be detected first because of their accessibility to examination, although nodes in other regions may be enlarged sooner but are not recognized as easily. Other findings of Hodgkin's disease such as splenomegaly or hepatomegaly, progressive anemia and fever will aid in the diagnosis. The subjective and objective symptoms of lymphosarcoma resemble those of Hodgkin's disease. Leukemia, especially of the lymphatic type, often is characterized by local or general lymphadenitis. The diagnosis usually can be made on the basis of the characteristic blood changes. Benign lymphoma is a rare condition characterized by the gradual enlargement of a single lymph node. According to Boyd3, the microscopic picture resembles lymphosarcoma but the accessory findings of lymphosarcoma are absent. Glandular fever or infectious mononucleosis is a benign condition causing slight to moderate enlargement of the cervical lymph nodes. It occurs in young people, lasts a few weeks and causes a moderate to marked mononuclear leucocytosis. Enlargement of the cervical nodes may occasionally be caused by metastases from a carcinoma of the mouth, lip, throat or larynx.

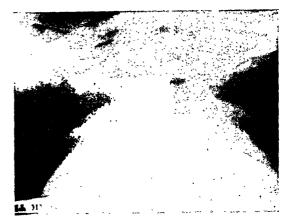


Fig. 3. Roentgenogram demonstrating calcification of tuberculosis, cervical lymph glands more marked on left side.

#### TREATMENT

The treatment will depend upon the stage of the condition when the diagnosis is made. General hygienic care is indicated in every case. Bed rest is necessary, if

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fever, toxic symptoms, leucocytosis or increased sedimentation rate are present. Graduated exercise may be permitted after the unruptured nodes have receded and the sinus tracts, if present, have healed. There should be no evidence of abscess formation and the sedimentation rate should be normal before physical activity is allowed.

Local roentgen therapy, under the direction of an experienced roentgenologist, usually is recommended for all cases except those where a sinus has developed or a large abscess is present. Some roentgenologists recommend roentgen therapy even in the presence of suppurative complications. General exposure to natural or artificial sunlight is advisable for every case but the reaction of the patient must be checked carefully by frequent recordings of the temperature and pulse. The application of infra-red rays for twenty or thirty minutes twice daily has proved of value. Care must be exercised to prevent burning although some skin discoloration will result, if the heat lamp is used over a considerable period. Abscesses should be aspirated through a 20-gauge needle to prevent spontaneous rupture with unsightly scar formation. The needle should be introduced in the direction opposed to the weight of gravity to avoid a sinus forming through the needle tract. The abscess should be aspirated from above downward, after skin infiltration with one-half to one per cent novocaine solution.

Webster4 found that microscopic examination of tonsils removed from patients with tuberculous cervical adenitis revealed tubercles in 50 per cent. For this reason, many authors recommend routine removal of the palatine tonsils in all adults and both the pharyngeal and palatine tonsils in children with tuberculous cervical nodes. Lately, we have been more conservative in recommending tonsillectomy and, in children, adenoidectomy for this condition. Tonsillectomy and adenoidectomy usually should be delayed until the lymphadenitis has become quiescent. If surgery is to be performed, the affected nodes should receive roentgen treatment at least one week prior to surgery and should be repeated one month later. These precautions are recommended in order to prevent the breaking down of non-suppurative nodes. The possibility of abscess and sinus formation is increased, if the tonsillectomy is done during the acute stage of the glandular enlargement. We do not consider removal of the tonsils essential early in the course of treatment. Cervical gland tuberculosis frequently develops in a tonsillectomized child or adult so the tonsil is not the only portal of entry for the tubercle bacilli, although generally it is the most important one. Removal of the tonsils is seldom, if ever, an emergency procedure and the time of operation should be chosen carefully. They should not be removed until all discernible pathological activity in the lymph nodes has ceased.

Surgical removal of tuberculous lymph nodes is no longer recommended, except for biopsy purposes in questionable cases. The reasons for this have been well stated by Thompson.5 All of the tuberculous nodes cannot be removed, even by radical surgical procedures. Recurrences after surgical removal occur all too frequently. The immediate and ultimate prognosis with conservative treatment is good. Cosmetic results are better with conservative care, even if the abscessed nodes rupture spontaneously. Conservative treatment has none of the disadvantages of surgery and ultimately produces results more satisfactory in every way,

Once more, attention should be called to the necessity of taking a chest roentgenogram in every patient with tuberculosis of the cervical lymph nodes. This should be done routinely, even in the absence of pulmonary symptoms. The chest examination should be repeated at least twice a year and sooner, if indicated. It is not unusual for active pulmonary tuberculosis to appear one or two years after the development of tuberculosis in the cervical lymph nodes.

#### SUMMARY

1. Tuberculosis of the cervical lymph nodes develops secondary to the lymphangitis draining a tuberculous focus in the upper respiratory tract.

2. Usually, tuberculosis of the palatine and pharyngeal tonsils is the source of the tuberculous lymphangitis. Less commonly, a tuberculous focus in the middle ear. mouth, nose or pharynx is responsible for the tuberculous lymphangitis.

3. The human type of tubercle bacillus causes most of the cases currently observed. The bovine type of infection has largely disappeared due to the control of tuberculosis in cattle and the pasteurization of milk.

4. The tuberculous focus in the upper respiratory tract may be primary or it may be secondary to active pulmonary tuberculosis. Roentgen examination of the lungs is indicated in every patient with tuberculosis of the cervical lymph nodes.

5. Chronic enlargement of the cervical lymph nodes usually causes the patient to consult a physician. In late cases, abscess and sinus formations are the prominent features.

6. The diagnosis is dependent upon a positive reaction to the tuberculin test, the recovery of tubercle bacilli, biopsy and the recognition of pulmonary tuberculosis, if present.

7. Confusion in diagnosis may be caused by acute and chronic non-specific lymphadenitis, Hodgkin's disease, lymphosarcoma, syphilis, lymphatic leukemia, benign lymphoma, infectious mononucleosis, branchial cysts and metastatic tumors.

8. Depending upon the stage of the disease when treatment is undertaken, the following are helpful: (a) bed rest during the stage of activity; (b) ultraviolet, roentgen and infra-red therapy; (c) aspiration of abscesses.

9. Surgical removal of tuberculous lymph nodes is not recommended unless essential for diagnosis.

10. Pharyngeal and palatine tonsils may be removed surgically after all activity in the lymph nodes has ceased. This should never be considered an emergency procedure.

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## Syphilis of the Lung

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E have reviewed the records of sixty patients who were referred to the section on dermatology and syphilology of the Mayo Clinic during the past twenty years because of the suspicion that they might have syphilis of the lung. In only four cases of the entire group was the eventual diagnosis pulmonary syphilis; the other patients were found to have either carcinoma, lymphoblastoma, teratoma, tuberculosis, pulmonary fibrosis or aneurysm or were lost track of so that it was impossible to make a conclusive diagnosis.

Of the four patients for whom a diagnosis of pulmonary syphilis was made three were men and one was a woman, their ages ranging from forty-nine to sixty-two years. In one case the spinal reactions were positive while they were negative in the other three and none of the patients manifested any confirmatory clinical evidence of syphilis. The serologic reactions of the blood in all cases were positive.

The clinical and laboratory data in the four cases in which the diagnosis was pulmonary syphilis were as follows:

- 1. The pulmonary symptoms noted were dyspnea, hoarseness, persistent cough with blood-tinged sputum, thoracic pains, weakness and loss of weight. Practically all of these symptoms were present at one time or another, although all of them were not noted simultaneously. Dyspnea, cough and bloody sputum were a prominent triad.
- 2. Physical findings were as follows: The examination of the thorax did not reveal physical findings that were of help in arriving at a diagnosis. Large coarse râles were heard if the involvement of the lung was of the nature of diffuse fibrosis. In patients with the nodular or tumor type of lesion the thoracic findings were vague, indefinite and of no diagnostic significance. Emphysema may be a part of the clinical picture but not necessarily a manifestation of the syphilis.
- 3. Thoracic roentgenographic findings were as follows: In three of the cases the roentgenograms showed a nodular mass or infiltration in either the upper part of the lung or throughout the pulmonary fields. The woman patient, however, displayed diffuse fibrosis of the pulmonary fields with no infiltrated masses or nodules.
- 4. On bronchoscopy and biopsy, the walls of the main branches of the bronchi were reported as "inflammatory."
- examinations of the sputums were negative for bacilli of tuberculosis in all cases. b) The serologic reactions of the blood were positive in all cases. c) No other significant laboratory data were noted in any of the cases.

In other words, the basis for a suspicion of pulmonary syphilis was the location and character of the infiltrative

\*Section on Dermatology and Syphilology, Mayo Clinic. †Fellow in Dermatology and Syphilology, Mayo Foundation. process in the pulmonary fields, the absence of laboratory data and clinical findings that made any other definite diagnoses possible and the presence of positive serologic reactions of the blood for syphilis. The gummatous infiltrations in the lungs appeared either as discrete nodular or tumor masses in the vicinity of the hilus or as multiple nodules in both pulmonary fields. In one case the original roentgenographic interpretation was bilateral fibrosis. It is not possible to describe the characteristic roentgenographic picture of pulmonary syphilis, because of its variability.

The literature on syphilis of the lung was reviewed by Lieu in 1940. He called attention to the following types of pulmonary syphilis:

- 1. Gumma. a) Coarse, b) Miliary.
- 2. Diffuse syphilitic sclerosis of the pulmonary parenchyma or syphilitic scarring.
- 3. Bronchopneumonic type—similar to the pneumonia alba of congenital syphilis.
- 4. The fourth type mentioned by Lieu is syphilitic phthisis, which is an old term handed down from the pre-Wassermann test days and is now so controversial that it might well be dropped from the classification.

A therapeutic test for pulmonary syphilis was given to these four patients because of the roentgenographic findings, the presence of positive serologic reactions of the blood and the exclusion with the aid of the laboratory of other conditions that might produce lesions in the lung such as those observed in the roentgenograms. The result of the therapeutic test for syphilis, which is by no means infallible, is still the only means by which the presumptive diagnosis of pulmonary syphilis may be confirmed during the life of the patient. A therapeutic test for syphilis as a means of making a diagnosis is open to criticism, primarily because the improvement that may follow such treatment is sometimes due to the nonspecific effects of the drugs employed. Even though the symptoms improve or disappear and the roentgenographic findings of the thorax disappear, the deduction is not always warranted that the lesion in the thorax was syphilitic.

Admitting that "nonspecific" effects of antisyphilitic treatment may confuse such a diagnostic problem, such results of treatment are rare and not in themselves a sufficient reason to refrain from giving such a test to a person who is suspected of having syphilis of the lung. Although the diagnostic purist may not accept the disappearance of a lesion of the lung following treatment for syphilis as evidence that the original lesion was syphilitic, such a procedure is at present the only method that we have at hand for making a diagnosis in such cases. Accordingly, its continued use is nevertheless warranted until a more accurate procedure becomes available.

Stokes has recommended the use of mercury or bismuth and iodides, avoiding the arsenicals because the "nonspecific" effects are more likely to follow the use of the latter.

The observation of the patient following the therapeutic test is equally important in reaching the final diagnosis because as in other visceral forms of late syphilis it is rare for syphilis of the lung to recur following its involution under treatment. Therefore, the longer these patients remain free of the pulmonary symptoms following their disappearance under antisyphilitic treatment, the more certain the diagnosis of pulmonary syphilis becomes, because the so-called nonspecific beneficial effect of these remedies is frequetly of short duration and is followed by a recurrence of the original signs and symptoms. Likewise in those cases of nonsyphilitic disease of the lung in which the patients derive benefit from an arsenical and bismuth, it is rare that a second course of treatment is accompanied by a disappearance of the symptoms for the second time. Fungous disease and spirochetal disease of the lung are examples in point.

A therapeutic test in a patient suspected of having syphilis of the lung should start cautiously. A two or three week preparation with intramuscular injections of bismuth should precede the use of the arsphenamines. Potassium iodide may be given during this preparatory period in doses up to 50 minims (3 cc.) three times a day by mouth. Mapharsen is a satisfactory arsenical to use. It should be given in doses ranging from 0.01 to 0.06 mg. at five day intervals for a series of ten to twelve injections. It is advisable to use small doses with the first few injections and to increase the dose according to the patient's tolerance. The bismuth injections may be given concurrently. If the patient's improvement following treatment is satisfactory, subsequent treatment should be continued as in other forms of visceral syphilis until the patient has had a minimum of thirty injections of mapharsen and sixty of bismuth over a period of eighteen months. The need for more intensive or extensive treatment will depend on the other manifestations of syphilis that the patient may display in the cardiovascular or central nervous system or elsewhere.

#### SUMMARY

The suspicion of pulmonary syphilis should be aroused by the appearance of nodular infiltrated lesions in the upper pulmonary fields or scattered throughout the lungs, the presence of positive serologic reactions of the blood and the negative reports from other diagnostic laboratory procedures. A therapeutic test for syphilis confirms or denies the presumptive diagnosis when the pulmonary symptoms disappear. Repeated roentgenograms of the thorax should be made at three to six month intervals to make sure that the lesions in the lungs which disappeared have not reappeared. If the patient continues to gain weight and maintains the improvement noted in his general condition, this fact is a further confirmation of the diagnosis of pulmonary syphilis. The serologic tests on the blood may not show any significant change for many years after treatment is stopped. It is justifiable to give such a therapeutic test

to a patient who presents a bizatre or unusual thoracic lesion associated with positive serologic reactions of the blood and in whom all the other laboratory procedures do not permit of a definite diagnosis, because syphilis of the lung is a rare disease, is not well understood and may manquerade in forms not herein described.

#### REPORT OF CASES

Case 1. A fifty-seven year old woman came to the clinic in 1933 because of increasing dyspinea of one year's duration. She was moderately obese. Examination of the heart showed an increase of cardiac dullness, heart sounds were distant and tone was of poor quality. No arrhythmia or murmurs were heard. Examination of the thorax revealed coarse rales throughout, but otherwise the examination gave negative results.

The laboratory data were as follows: Kolmer, 3 plus; Kahn, 3 plus; Kline, 4 plus; Hinton, negative The spinal fluid gave negative reactions. The sputum was negative for tubercle bacilit. A roentgenogram of the thorax on November 19, 1933, was reported as showing blateral fibrosis.

Antisyphilitic treatment, consisting of six injections of neoarsphenamine, each of 0.2 to 0.4 mg, and 15 injections of bismuth, was followed by 11 improvement in the toentigenographic findings as evidenced by decrease in the fibrosis; 21 general clinical improvement with disapperarine of the dyspnea; 3) decrease in serologic reactions paralleling the clinical improvement Repeated re-examinations and a recent observation eleven years after the original examination showed no pulmonary findings by coentigenographic or clinical examination, the serologic reactions were completely negative and the patient had no pulmonary symptoms. The total antisyphilitic treatment consisted of nine injections of neoarsphenamine (to which the patient became intolerant) and sixty injections of bismuth.

The reports of the toentgenographic examinations of the thorax following antisyphilitic treatment have been as follows: on February 8, 1934, considerable decrease in fibrosis since the original examination on November 19, 1933; on May 21, 1934, sight fibrosis of right base; on December 5, 1934, some fibrosis of both apices; on August 12, 1936, thorax negative; on April 7, 1942, thorax negative; on May 9, 1944, thorax negative;

Case 2. A forty-nine year old white man, a miner, when examined in October, 1940, revealed, on stereoscopic examination of the thorax, a shadow in the middle left lung (Fig 1). The first pulmonary symptoms appeared in November, 1940, when he noted shortness of breath, weakness on exertion and a dry cough with minimal expectioation of a dark colored material. A tentative diagnosis of a pulmonary malignant lesion had been made at home. The history revealed that the patient had acquired syphilis in 1912.

A physical examination done on December 16, 1940, revealed small palpable cervical and azillary lymph nodes. The heart was of normal size and no murmurs were heard. The lungs were negative to auscultation. The blood pressure was 120 mm of mercury systolic and 78 diastolic; the pulse was 120; temperature was 99.4° F. Serologic tests of the blood, including the Kline, Kahn, Hinton and Kolmer tests, all gave strongly positive results. Leukocytes numbered 12,800 and erythrocytes numbered 4,800,000 in each cubic millimeter of blood; the differential count was normal. Roentgenologic examination of the thorax by stereoscope showed a large tumor mass just below the left hilus with enlargement of hilar glands. Nodular areas of increased density in first and second interspaces and a fine disseminated infiltration to both lungs were also noted

Bronchoscopic examination showed the mucosa of the anterior wall of the main branches somewhat infiltrated. Specimens scraped from the wall and examined microscopically were reported as "inflammatory tissue."

The diagnosis of metastatic carcinoma seemed most probable and the patient was given roentgen therapy. After the one course of roentgen therapy the patient went home with the suggestion that he undergo a course of antisyphilitic treatment with alternating courses of bismuth and mapharsen in conjunction with potassium iodide by mouth.



Fig. 1. Well-circumscribed mass in left lung and small nodule in right lung at level of second intercostal space on the right. These lesions disappeared following antisyphilitic treatment.

A letter from his home physician after six months of mapharsen and bismuth injections reported marked improvement as evidenced by the roentgenogram of the thorax, which showed no residue of the lesion which was suspected of being a cancer. The patient now has no pulmonary symptoms and has gained 12 pounds (5.4 kg.)

Case 3. A sixty-two year old white man, married, came to the clinic on August 23, 1926, with the chief complaint of pain in shoulders and back, especially after exertion, which had been present four or five years but had become more severe in the past eight months. In December, 1925, he had had pneumonia with pleurisy. Since then he complained of increasing tiredness, slight cough, excessive sputum which was not blood-tinged, weakness and an occasional pain around the heart.

The physical examination revealed a thin, emaciated white man, whose pupils reacted slowly. Examination of the lungs revealed a percussion note which was impaired in the left apex. The breath sounds were within normal limits. The serologic reactions of the blood and spinal fluid were both strongly positive. The report of the roentgenogram of the thorax was as follows: "There is an infiltration of the left upper lobe, bilateral bronchiectasis, interlobar pleurisy. There is a peculiar type of pulmonary infiltration suggestive of syphilis."

After two courses of twenty injections each of the succinimide of mercury, there was striking improvement both roentgenographically and symptomatically. The patient gained 10 pounds (4.5 kg.) following the first course of mercury and four months later reported a gain of 35 pounds (15.9 kg.) In November, 1937, eleven years after his original admission to the clinic, the serologic reactions were reported as negative, roentgenogram of the thorax was reported as negative and he had no pulmonary symptoms.

The treatment for syphilis in this case was limited to the use of mercury only, in an effort to avoid any "nonspecific" benefits that might follow the use of arsphenar ine.



Fig. 2. Multiple nodules in lungs with enlargement of hilar and mediastinal shadows due to enlarged lymph nodes. Pathologic diagnosis of nodules reported as "inflammatory tissue compatible with diagnosis of syphilis."

Case 4. A fifty-nine year old man came to the clinic on August 11, 1941, complaining of a chronic cough for more than a year with expectoration of a half cup of blood-tinged sputum daily. He had dyspnea on mild exertion and a constant dull pain in the midsternal region associated with some hoarseness. No loss of weight or night sweats had been noted. The serologic tests of the blood, including the Kline, Kahn, Hinton and Kolmer, gave strongly positive results, but the spinal fluid examination gave negative results. Repeated examinations of the sputum were negative for bacilli of tuberculosis. The roentgenogram of the thorax (Fig. 2) was reported as follows: "Multiple nodular masses in both lung fields, suggestive of gummatous infiltrations."

In view of the findings the patient was urged to undergo a course of antisyphilitic therapy with mapharsen and bismuth; however, he returned home where he was given intensive roentgen therapy to the thorax for a period of many months with no improvement in cough, pain and dyspnea. No antisyphilitic treatment was given. In December, 1943, after a coma of twelve hours the patient died.

The postmortem findings were as follows: gross subacute fibrinous pericarditis, bilateral pleural effusion, extensive bilateral adhesions, multiple pulmonary tumors, atelectasis of the left lung, chronic mucopurulent bronchitis, chronic cholecystitis with cholelithiasis, radiation pigmentation of the thoracic wall, left chronic nephropathy and chronic cystitis.

On histologic examination the tumors were reported as chronic granulomas compatible with gumma.

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Stokes, J. H., Beerman, Herman, and Ingraham, N. R., Jr.: Modern clinical syphilology; diagnosis, treatment, case study. Philadelphia, W. B. Saunders Company, Ed. 3, 1944, 1332 pp.

#### Book Reviews

The Marihuana Problem, by the Mayor's Committee on Manhuana. Lancaster, The Jacques Cattell Press 220 pages; 1944; \$2.50.

In addition to the sociological investigation carried on by the committee from the New York Academy of Medicine appointed by Mayor LaGuardia of New York City, another group of smokers was studied in the clinical laboratory to determine the physical and psychological effects of the drug. As such, she book will be appreciated by physicians. The mayor calls it a basic contribution to medicine and pharmacology.

Each of three foundations donated \$7,500 for the survey, the Michael Friedsam Foundation, the New York Foundation and the Commonwealth Fund, \$20,000 of the total was devoted to the clinical study, the financial supervision of which was undertaken by the Research Council of the Department of Hospitals. Dr. Karl M. Bowman directed the medical and psychiatric section of the study, Dr. David Bowman the psychological part. Pharmacological Jabots were performed at Cornell University.

In the clinical study, the committee investigated the actual effects of the use of marihuana—watched for mental continson, and checked the smoker's feeling of prolongation of time and space and on his sexual desires or phantasies as they occurred. Comparisons were made between the effect of the drug on users and non-users. The subjects were men and women volunteers.

From a medical point of view, the smokers were checked on such symptoms as the contagiousness of laughing and joking; difficulty in focusing; feeling of lightness, heaviness, dizziness; dryness of the mouth and sensations of floating.

Other tests checked organic and systematic functions of the homan "gumea-pigs"—their circulation, pulse rate, blood pressure, blood morphology, and reactions on the kidneys, liver and gastro-intestinal tract. Checks were made also on hand-steadiness, strength of grp, and hand-and-foot reactions.

Atlas of the Blood in Children, by Kenneth D. BLACKPAN, M.D., and LOUIS K. DIAMOND, M.D., with illustrations by C. Merrill Leister, M.D. New York: The Commonwealth Fund; 320 pages with indices and 70 illustrations. 1944. §12.

This atlas is one of the finest publications in the field of pediatrics. The book is divided into two parts, namely a section on the description of blood disease in infancy and childhood with case reports, and a portion that is devoted entirely to illustrations in color of the blood cells in normal and in pathologic states in children. A fairly complete knowledge of many diseases affecting the blood, patientially with regard to individual variations in reaction, changing symptoms, course, prognosis and effective therapy is furnished in such a way that the reader is sure that he is receiving the best information. Add to this the colored plates and one cannot help but recommend this book most highly for the general practitioner and the specialist interested in pediatrics and hematology.

The Psychiatric Novels of Oliver Wendell Holmes, by CLAMENCE P. OBERNDORF, M.D. New York: Columbia University Press. 268 pages, 1943, price \$3.

Oliver Wendell Holmes was one of the most versattle doctors of all time. That is the primary reason for his having been so variously appraised. To medical men he is the first American doctor to have discovered and preached that doctors and midwives were mainly responsible for puerperal fever. [Semmelwes of Vienna has been usually hailed as the hero of this discovery, but although he won immortality through being martyrized by his professional bretheren, the luckier Holmes published his "On the Contagiousness of Puerperal Fever" four years before

the Austeian's paper appeared). To college students Holmes is a professor who, 'way back in the last century, wrote mildly amusing verse and dated essays; to a recent biographer of his son he was the vain and jealous father of a great chief justice Few today know him for a novelist, and still fewer as a paychologist who practited what we now think of as Freudian psychology, joing before Freud was out of knee pants.

It is as a psychologist that Dr. Oberndorf, psychoanalyst at Columbia, resurrects him for us in this study. We are first, in an introduction, given an interesting account of the man Holmes and his times; then follow the three "medicated novels"—Elite Venner, The Guardian Angel, A Mortal Antipathy—which have been abridged by him to from one-eighth to one-tenth of the original tests, to which he has added copous interpretations, notes and comments. It is Dr. Oberndorf's contention that Holmes, suspecting that as a professor of anatomy his psychiatric views would be derided by his colleagues, chose to present them as fiction. Certainly judged by present standards they are pretty poor novels, but the reader will agree with Dr. Oberndorf that they stand "as excellent testimony to Holmes' medical keenness, his knowledge, and profound psychiatric understanding," and that he was indeed a "precursor of Freud." For back in the 1850's this doctor talked of "the unconscious" and displayed an amazing awareness of free association, the dangers of early psychic trauma and of parent-child telations, recognized and treated complexes and neuroses that even professors of psychology failed to recognize until Freud years later had named them for the world

Everyone interested in psychiatry and medical history should find this unusual book stimulating reading. Not only is it a scholarly analysis but it shows up the little Boston doctor, prolific writer of humorous verse, philosopher and "autocrat," to have been a truly creative physician of men's soul's no less than their bodies.

The Doctor's Job, by CARL BINGER, M.D.; New York: W. W. Norton & Co., Inc., 1945. Price \$3.00.

Here is a book of which every doctor might well buy two copies; one to keep in his waiting-room (chained like a Gideon Bible), another to lend to his favorite patients. The doctor's job as conceived by Dr. Binger is to bring "trained human understanding" of health to the sixk person. Three have been many books by and about doctors and their patients but we know once that cleals so sympathetically with this intensity human relationship, none that says so much or so wisely of what every layman should know about the medical profession—its accomplishments and limitations—nor explains so clearly the "new" mind-body conception of disease, new coday, but taught by Hippocrates more than two thousand years ago. In his discussion of psychiatry in unitechnical terms he shows how "the splinter in your soul" may complicate, even inaugurate certain diseases, and how mind-reading used unconsciously by skilled doctors of the past, has now become an invaluable tool requiring as delicate handling as the surgeon's kinfe

But the psychological feature of the job is but one part. In other chapters the layman receives much practical information to help him greatly in his orientation. Fle is told for example how to choose a doctor, why and when a spectalist, the meaning of "medical ethics," told frankly of the doctor's differman in placing a price on his services and of the troubled subject of med-

ical economics in general.

"The essence of good medical care," Dr. Binger says, "depends upon a closer relationship between the patient and a doctor with a healing personality, one who cares about helping him and has at his disposal all the technical facilines of twenteth-century medicine. Neither by itself is sufficient." Laying all his cards on the table he blows away clouds of supersitions and shibboleths. And he does it all with the art and grace of an Osler.

The doctor may not find anything "new" in this book but the sterne writing and quality of the author's mind cannot fail to hold his interest; the intelligent lay reader for whom it is primarily written, will close the book with a renewed respect and understanding of himself and of his own doctor. Of course, he may wife De. Burger for an appointment!

## American Student Health Association Newsletter

CURRENT LEGISLATION

On February 7, 1945, Representatives Hartley and Weiss introduced in Congress a bill, H. R. 2045, entitled: A Bill to establish a U. S. Commission for the promotion of physical fitness and making an appropriation for such commission.

Excerpts from declaration of intent of the bill:

"A high degree of physical fitness is essential for the existence of our nation..."

"Failure to provide adequate physical training since World War I has accounted for, in large measure, weakness in physical condition and lack of motor skill and has contributed to great loss of life and materiel, and to needless expenditure of funds."

The bill provides for a Commission on Physical Fitness composed of: two senators appointed by the president of the senate; two members of the house appointed by the speaker of the house; five persons named by the President, of which one man and one woman shall be professionally trained in physical training, and one shall be expertly qualified in the conduct of competitive athletic sports.

Duties of the commission shall be to promote the physical fitness of the inhabitants of the United States through physical training, competition in all athletic sports, camping and kindred activities.

"to develop and maintain an efficient motor fitness..." "encourage activities relating to physical development..." "encourage provision of facilities for conduct of physical fitness activities." ... "encourage the development of physical fitness through amelioration of physical defects by physical exercise."

Funds: Congress will appropriate \$25 million for the purpose of aiding the states in providing the program in the fiscal year July 1, 1945 to July 1, 1946, and thereafter such sums as the commission recommends and congress may determine; after the first year the states will have to match federal appropriations.

Publicity on this bill called attention to the great number of selective service rejections because of physical defects. Probably less than 2 per cent of such rejectees could have been raised to selective service standards by the best type of corrective physical training.

Does this bill fulfill its avowed purpose, of providing means to improve the static health of the population? Selective service acceptances are on the basis of health and freedom from physical defects rather than on the basis of motor skills.

Would it not be better to delay introduction of such legislation until an over-all program for health improvement and maintenance can be agreed upon?

Members are urged by President Canuteson to write their representatives in congress asking for copies of the bill, and then to express their opinions as to whether they agree or disagree with this bill. DIGEST OF MEDICAL NEWS Dr. Oliver E. Byrd

Leland Stanford University

## A SCHOOL SPONSORED EPIDEMIC OF MUMPS

Milton I. Levine, M.D., of the Cornell University Medical College reports on the results of a sponsored epidemic of mumps in a private school in New York.

Among the so-called contagious diseases of childhood, mumps has one quality peculiar to itself—that of being less severe in complications before puberty than after this period.

It might seem reasonable to attempt to expose children to cases of active mumps in order that they might develop an immunity prior to the onset of adolescence.

The present paper reports the results of such an attempt in a private school of 161 children during the mumps epidemic in New York City in the early months of 1942. This school\* had for the twelve previous years been remarkably free from mumps.

On January 22, 1942, one of the children developed mumps and soon exposed others.

The following letter was sent immediately to all parents:

"Dear Parents:

At the present moment there are a number of cases of mumps in the school. Several of the children have brothers or sisters in other classes not exposed.

With all other contagious diseases our policy is to exclude these children exposed at home to avoid further possibility of

However, since mumps is an extremely mild disease and almost devoid of any complications before puberty, and may be at times very painful and result in serious complications after puberty, I feel it would be inadvisable to do anything to avoid exposure to this disease, unless there is a particular reason.

We would like to know if you and your child's physician are in agreement."

This letter brought forth the unanimous approval of the parents, with only one questioning note from a pediatrician who felt that no child should ever knowingly be exposed to a disease, but consenting to the plan if most of the parents agreed.

Accordingly, no restrictions were placed on exposed children, with the exception of the classes of children aged 3, 4, and 5 years.

Within a period of three months 62 children (54.4 per cent) from a total of 114 susceptibles in the upper eight classes developed the disease. Four children in the lower three classes contracted the disease form their brothers or sisters.

Of the 66 children who developed the disease, 6 developed complications. The parents of 4 children developing mumps encephalitis were reassured that there would be no after-effects.

Two other complications which developed were a moderately severe inflammation of the testicles in a boy aged 12, and a possible inflammation of the pancreas in a child of 8 years.

When the epidemic subsided a questionnaire was sent out requesting complete information on the children who contracted the disease, with an added question as to whether any other members of the family contracted the disease. The final analysis revealed that beside one teacher, who was incapacitated with the disease for two weeks, 10 parents suffered from the infection, a possibility which was completely overlooked when the plan was suggested.

It is doubtful if any further epidemics will be sponsored by the school.

Reference. Lesine, Milton I "A Sponsored Epidemic of Numps in a Private School," American Journal of Public Health, 34:1274-76 (No. 12), December 1944

#### CHEESE AND TYPHOID FEVER

Karl F. Meyer, M.D., of San Francisco, California, reports that during 1944 the California State Health authorities were greatly baffled by an increased incidence in four counties of typhoid fever (77 cases, resulting in 2 deaths). Pannstaking and diligent investigation disclosed that, common to all cases, was the consumption of unpasteurized cheddar cheese of the unripened variety. Invariably the members of the families who were consumers of large quantities were affected, while those who consumed it in the cooked form were not attacked.

Actually, a number of epidemics of typhoid fever have been caused by infected cheese. In recent years, our good neighbors in Canada have had their share of typhoid fever caused by hard rennet cheeses of the cheddar variety. As early as 1932 an outbreak of 627 cases, with 57 deaths occurred in the St. Maurice valley.

In 1925, an epidemic of 29 cases of typhoid fever with 4 fatalities occurred in Minnesota. The evidence proved a carrier in the family of one of the contributing patrons of the cheese factory as the source of infection. As the creamery had many requests for the fresh cheese, the product was distributed as early as ten days after making, instead of holding it to ripen as is usually done. Epidemiological data, furthermore, showed that the typhoid bacilli had lived in the cheese approximately 63 days. At least two cheese-borne epidemics of typhoid fever have been observed in New York State.

Indiana experienced in 1944 a typhoid epidemic of 225 proved cases and 12 deaths traceable to the eating of green cheese made from unpasteurized milk.

All the evidence on cheese-borne typhoid fever shows the infective agent invariably reached the cheese through the use of raw milk accidentally contaminated by a carrier or an ambulatory case. Adequate pasteurization of the milk, or pasteurization at any stage in the cheese making process, should render fresh, unripened cheese safe.

Studies show that when 1,000 to 600,000 typhoid bacilli are worked into cheeses, infective organisms are retained for a period of three months when held at 58 to 60° F. At lower temperatures of 40 to 42° F., the typhoid organisms could be isolated for six months and, in fact, in the majority of the cheese specimens, for ten or more months.

### THE CONQUEST OF BOVINE TUBERCULOSIS

H. R. Smith, General Manager of the National Live Stock Loss Prevention Board, says that cattle in the United States first became infected with tuberculosis from importations of breeding cattle from Europe, long before we had the tuberculin test. The disease spread until, in 1916, of all cattle slaughtered under Federal inspection in the United States 2,35 per cent were retained for tuberculosis (lesions found on postmortem examination), the percentage infected being much higher.

The disease was transmitted from cattle to swine through infected milk and droppings. In 1917, 40,746 cattle and 76,807 hogs were condemned for tuberculosis.

Appropriations were made by Congress, state legislatures, and county boards which were increased each year until 1935 when a total of \$26,792,179 was spent in one year to test cattle for tuberculosis and to pay owners for livestock condemned because of this disease.

Since 1935 expenditures for this purpose have decreased greatly as the infection has been reduced in cattle.

In 1943 the incidence of the disease in all cattle had been reduced 98 per cent, but in hogs much less because of the prevalence of tuberculosis in poultry (avian) which is readily communicated to hogs, but rarely to cattle.

The decline in human tuberculosis that has been explained in part by the eradication of this disease in cattle is shown in the following table. The decrease in glandular, bone, and abdominal tuberculosis death rates is probably closely associated with the decline of this disease in cartle.

	Human Death Ra Respiratory	Other	Cattle Tested for	Tuberculous Cattle	Per Cent Slaughte Cattle Retained
Ye		Forms	Tuberculosis	Slaughtered	for T B
190		21.4			
190		21 9			
190		24 5 24 6			
190		23 6			88
190		23 4			1 27
19		24 5			1 42
19		26 5			1 37
19		24 7			1 98
191		24 8			2 0 2
191		23 7			1 98
191	5 123 5	22 B			2 11
191		22 2			2 35
191		22 5	20,101	645	2 1 1
191		21 4	134,143	6,544	1 80
191	9 1075	18 1	329,878	13,528	1 57
19.		170	700,670	28,709	1 52
192		13 3	1,366,358	53,768	1 62
192		12 L 11 5	2,384,236	82,569	1 76
192		11.7	3,460,849 5,312,364	113,844	1 75
192		10 8	7,000,028	214,491	1 51
392	6 766	107	8,650,780	323,084	1 41
192		95	9,700,176	285,361	1 15
192	8 703 -	90	11,281,490	262,113	1 04
197		8.4	11,683,720	206,764	1 00
193		8.1	12.845.871	216,932	75
193		75	13,782,273	203,778	62
193		6.5	13,443,557	254,785	49
193		59	13,073,894	255,096	42
193		5.4	15,119,763	232,368	36
193		5.1	25,237,532	376,623	24
193		5 0 4.6	22,918,038	165,496	18
193		4.3	13,750,308 14,108,871	94,104 89,359	11
193		3.9	11,186,803	60,338	10
194		3.7	12,222,318	56,343	08
194		3.7	12,229,499	40,702	.07
194		3.5	10,983,086	28,008	061
194			9,308,936	17,167	.048
	-				

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MINNESOTA, NORTH DAKOTA

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#### DRAMATIC ADVANCES ON THE TUBERCULOSIS FRONT

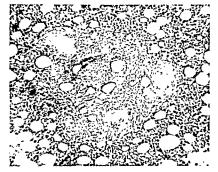
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Until recently the diagnosis of early generalized miliary tuberculosis was practically an impossibility. Symptoms when present are similar to those of other diseases like typhoid fever. Physical signs, including x-ray film inspection of the chest, are nearly always absent. The tissues may fail to react to tuberculin if they have been desensitized by the overwhelming condition. Tubercle bacilli are rarely found in the sputum or gastric washings. Indeed, 50 per cent or more of the diagnoses in the past have been possible only at postmortem. With chemotherapeutic agents now becoming a strong possibility it is of extreme importance that the physician be able to detect this disease early. Apparently this has become a reality through the splendid contribution of Schleicher of the Minneapolis General Hospital, who through microscopic examination of bone marrow from the sternum

is able to demonstrate the presence of miliary tubercles (illus.) while the disease is in its early development. The case reports presented by Peterson and Canfield emphasize the importance of delicate diagnostic aids in differentiating between generalized miliary tuberculosis and other serious conditions.

The papers by Boynton, Jordan, and Harrington show the effectiveness of tuberculosis control measures based upon the well-known fundamental procedures; namely, the tuberculin reaction to detect those with primary tuberculosis, x-ray films of the chests of adult reactors to find those with gross lesions as early as they cast shadows visible to the naked eye, periodic x-ray inspection of the chests of all other adult reactors to find those in whom such lesions subsequently develop, careful examination including laboratory and clinical procedures of those who have x-ray shadows to determine which are due to tuberculosis, isolation and treatment of all contagious cases of

tuberculosis, and complete control of tuberculosis among the animal herds, particularly cattle. By these methods practiced even in a somewhat haphazard manner throughout the state of Minnesota Boynton has shown that in thirty years the mortality from tuberculosis among all children of fifteen years of age has been reduced 88 per cent and in infants under one year of age, 93 per cent. Jordan, who has carried out these fundamental control procedures in a well-organized manner, has whole schools in which ont a single child is infected with tubercle bacilli. For the first time in the history of this country a nation-wide tuberculosis control program is being developed by the United States Public Health Service. The paper by Hilleboe and Newitt shows in part the scope of this laudable undertaking. Thus the goal attained by the veterinarians and their allies described by Dr. Wight is now in sight for control of tuberculosis in man.



Human Bone Metrow, Sternum. Histologic section of 2 gross marrow unit (aspirated during life) showing military tuberculosis Magmification x 180 (Courtesy Dr. E M Schleicher.)

For many years the JOURNAL-LANCET has encouraged routine examinations for tuberculosis in the offices of all practicing physicians. Dr. Hacker's paper shows how effectively this can be done. The excellent article on tuberculous cervical adenitis by Dr. Cohen will remind many physicians now practicing of the time when this form of the disease was extremely prevalent. Now it is relatively rare in this country.

Syphilis of the lungs has been in a state of considerable confusion in the minds of physicians for many years. In this issue Dr. O'Leary has clarified the subject. Apparently syphilis and tuberculosis pursue almost parallel courses in the human body in several respects. They are both caused by specific organisms; both begin with the development of primary lesions which are soon brought under control by the natural defense mechanism; organisms;

isms from the primary lesions may live over long periods of time in the human body; significant clinical lesions (tertiary) later appear in about one-third of persons infected with spirochaeta pallida and probably an equally high percentage of persons infected with tubercle bacilliater develop lesions (reinfection type) of clinical importance. The medical profession and its allies have won a significant victory over syphilis. It only remains to apply our present knowledge to win a similar victory over suberculosis.

I. A. M.

#### CANCER CONTROL

The Center for Continuation Study at the University of Minnesota in cooperation with North Dakota State Medical association, Minnesota State Medical association, North Dakota State department of health. North Dakota branch of the American Cancer society, and the Minnesota Cancer society conducted two cancer courses during February, 1945. The course for physicians was attended by over 90 practitioners. The course for lay workers which followed was attended by nearly 100 women. This unique demonstration of interest in cancer marks a new high in cooperative effort. For a long time it has been felt that both physicians and lay persons should know more about the beginning stages of cancer and the various methods of treatment. Great progress has been made in this field, and the outlook is more encouraging than it was a few years ago. Physicians who came to teaching centers in the past saw cancer patients in the late stages of the disease, and little hope was held out for their cure. Today, education of the public and profession brings patients in earlier so that physicians attending clinics in teaching centers now see a great many patients who were treated several years ago who are still free of the disease. There has also been outstanding development in cancer research. At the University of Minnesota the project was made possible by special state appropriation and by a gift of the Citizens Aid society. The Dight Institute at the University of Minnesota is carrying on special genetic studies of human cancer. The cancer group is admittedly a pressure group. It is an organization of physicians and lay persons who wish to see something done about the cancer problem. When their purpose is achieved, there will cease to be a need for them. At the present time the Cancer society is making an appeal for funds. Physicians should contribute freely to this campaign, for most of the money will be allocated for research. In addition, the educational campaign will be continued. Dressings will be made for indigent cancer patients, and programs of instruction will be carried on in the schools.

WILLIAM A. O'BRIEN, M.D.

Medicines sufficient for the needs of 1,000,000 school children are being sent by the American Junior Red Cross to schools in Yugoslavia, Greece and Belgium. The medicines are contained in kits each of which is designed to serve 400 children and each contains 30 standard medical items.

## MEET OUR CONTRIBUTORS

We introduce this new column not as a publicity "stunt", not to boast of the distinctions of our writers, proud as we are of them, but to satisfy in part a commendable curiosity. Who has not thought after reading an interesting and informative paper "I'd like to know more about this chap; he sounds like the real thing?" But our idea was no sooner born than came the spectre of paper shortage and we found ourselves obliged to pare down to the barest skeleton what we had hoped to make a true flesh-and-blood paragraph. So we start with an apology. C'est la guerre!

Dr. Jay Arthur Myers, Minneapolis, Minnesota, now president American College of Chest Physicians. You all know him as our guest editor for this issue and chairman of the JOURNAL-LANCET's editorial board. A graduate of the University of Minnesota where he is now professor of medicine and preventive medicine and public health, he has practiced in Minneapolis for 25 years, his specialty diseases of the chest. He has held so many offices and belongs to so many societies we can't possibly list them. For his work in the tuberculosis field he is known throughout the land.

Dr. Herman E. Hilleboe, a native son of North Dakota, and another of Minnesota-trained distinguished physicians, is now chief of the tuberculosis control division, bureau of state services U. S. Public Health Service. After taking all the medical degrees Minnesota could give him he went to Johns Hopkins and became a Master of Public Health. The U.S.P.H.S. sent him abroad to study tuberculosis control in four European countries and later made him chief of their tuberculosis control division with rank of medical director. An entire page would be required for the offices he has held and the papers he has published.

Dr. Willard Everett Peterson was graduated at the University of Minnesota in 1943. He is at present a medical fellow at the Minneapolis General hospital.

Dr. T. L. Harrington has practiced in Milwaukee, Wisconsin, since 1900. He received his bachelor of science degree at the University of Wisconsin, his medical one at the University of Pennsylvania. Tuberculosis is his specialty and primary interest.

Dr. Guy L. Hacker has lived and practiced in Dallas, Texas, for 11 years during which he has made tuberculosis history at the Freeman Memorial clinic. His specialty is pediatrics of which he is associate professor at Dallas' Southwest Medical Foundation.

Dr. Sidney Granville Clayman of San Haven, North Dakota, is a graduate of the University of Michigan, class of 1939, who has specialized in tuberculosis. He is staff physician of the North Dakota State Tuberculosis sanatorium. Dr. Alexander E. Wight is the head of the tuberculosis eradication division of the bureau of animal industry, U. S. Department of Agriculture, where he has been employed since 1898. He was trained for this work at the Harvard Veterinary college and has the degree of M.D.V. His specialty is cooperative animal disease control work. He has served as president of three societies, the A.V.M.A., the U.S.L.S.S., and the D.C.V.M.A. Since 1917 he has been chief of the tuberculosis eradication division.

Dr. Ruth E. Boynton, a graduate of the University of Minnesota, is director of the Students' Health Service at the university. She has been both president and secretary of the American Student Health association and has served as president of Minnesota State Board of Health. She is the present acting head of the university's school of health.

Dr. Sumner S. Cohen of Minneapolis, Associate in Medicine at the University of Minnesota and assistant medical director at Glen Lake sanatorium, has practiced in his home town for 17 years. During this time, he specialized in chest diseases and has served as secretary-treasurer and president of the Minnesota Trudeau Medicine Society.

Dr. Paul Arthur O'Leary, product of Dartmouth and Long Island colleges and a 1915 licensee, has a hatful of memberships and affiliations, American and foreign, and has been an officer, consultant, committee chairman or delegate of half of the thirty-odd bodies to which he belongs. A past president of the American Academy of Dermatology and Syphilology (1938), Dr. O'Leary is currently a member of the board for outlining treatment of syphilis and co-author of procedure for neuro-syphilis of the Army and Navy. For seventeen years he has been a professor of the Mayo Foundation, graduate school of the University of Minnesota, and has found time to write or collaborate in 250 articles as well as to be the co-author of Modern Syphilology.

Oliver Erasmus Byrd has been a health educator at Stanford University for the past eight years. From his Alma Mater he has received his bachelor and master of arts degrees and that of Doctor of Education. He is now taking a medical training there in order to supplement his work in health education. He is editor of the annual Health Instruction Yearbook published by Stanford.

Dr. William Austin O'Brien, serving his twenty-first year at the University of Minnesota, is president of the Minnesota Cancer Society and is the "mouthpiece of medicine" radiowise on station WLB and as a director of the medical section of the center for continuation study at the medical school. He is a graduate of St. Louis University, St. Louis, Missouri, and specializes in pathology, preventive medicine and public health with the last of these in capital letters. The genial doctor is the trade-mark of the school of medicine on the Minnesota campus.

The first edition of the U. S. Treasury's Surplus Reporter was issued November 29. The purpose of this and subsequent issues is to inform interested purchasers of commodities such as furniture, hardware, office supplies, etc., of what articles the Treasury has to sell and from where. Hospitals may find it much to their advantage to get on the Treasury's mailing list. The Regional Office of Surplus Property for Minnesota, North and South Dakota and Wisconsin is at 209 LaSalle St., Chicago; for Iowa and Nebraska, 2605 Walnut St., Kansas City; for Montana, Idaho, Oregon and Washington, 2005 Fifth Ave., Seattle.

#### News Items

The Grand Forks District Medical Society held its February meeting February 21, 1945. Dr. G. A. Abbott. chemistry department, University of North Dakota, read a paper: "Toxicology and its Relation to Crime Detection.

Bill H. R. 491 which Congressman William Lemke introduced, together with the telegram which was sent to Mr. Lemke, and his answers, were read and ordered published in JOURNAL-LANCET. They follow:

WM. LEMKE, REPRESENTATIVE, WASHING-TON, D. C. — GRAND FORKS DISTRICT MED-ICAL SOCIETY REGARDS YOUR H R. 491 AS DETRIMENTAL TO MEDICAL IMPROVEMENT. IF CARRIED WOULD PREVENT SUCH PROGRESS AS WAS MADE BY THE DEVELOPMENT OF INSULIN FOR DIABETES SURELY SUCH IS NOT YOUR INTENT WE PROTEST IN STRONGEST TERMS YOUR SPONSORSHIP OF SUCH A BILL

(THE BILL) - H R. 491

79th Congress Lit Session

> IN THE HOUSE OF REPRESENTATIVES January 3, 1945

To prohibit experiments upon living dogs in the District of Columbia and providing a penalty for violation thereof.

Be it enacted by the Senate and House of Representa-tives of the United States of America in Congress assembled. That from and after the passage of this Act it shall be a misdemeanor for any person to experiment or operate in any manner whatsoever upon any living dog, for any purpose other than the healing or curing of said dog, in the District of Columbia.

Sec. 2. That any person convicted of a violation of this Act shall be sentenced to pay a fine of not less than \$100 nor more than \$500, or to undergo imprisonment for a term of not less than three months nor more than one year, or both such fine and imprisonment

Sec. 3. That all Acts or parts of Acts inconsistent 13

herewith are hereby repealed.

Reply to North Dakota Medical Association:

January 22, 1945 Received your letter and note what you say about H R. 491. I wish to thank you for giving me your opinion on the subject. I do not believe it is necessary to torture dogs who are saving the lives of our sons on foreign battlefields in order to forward science. Many things that we thought in the past

We used to beheve people and thought we were saving lives and in fact we lost. In the early days it was considered unhealthy to have a bath and laws were passed prohibiting people from having bath tubs and from using them during certain months of the year. I am sure that medical science and development will lose nothing by not putting dogs in ovens and testing how much heat they can stand.

H. R. 491 has reference only to dogs and does not include white rats, guinea pigs nor monkeys that are now being used

wome rats, guinea pigs nor monkeys that are now being used for experimental purposes.

I assure you that I appreciate getting your viewpoint and that if there are hearings on H. R. 491 the medical profession will be afforded ample opportunity to be heard and then all the prot and cons and the necessity for this cruelty will be fully considered by the committee.

(Signed): WILLIAM LEMKE

The North Dakota legislature has passed a bill establishing a medical center at University of North Dakota. The bill enables the university to accept federal grants or donations from private agencies. Sponsors of the bill claim it will make possible a four-year medical course and expansion of the state's health and welfare services.

Dr. S. A. Slater, superintendent of the Southwestern Minnesota sanatorium since 1919, will be vested with the honorary degree of doctor of science and at the same time receive the Phi Beta Kappa key from his alma mater, the University of Richmond, Va., on April 27. Dr. Slater is a nationally recognized authority on tuberculosis and public health.

The twelfth E. Starr Judd lecture was given by Dr. Allen O. Whipple, professor of surgery at Columbia university, Tuesday evening, April 10, 1945, at 8:15 in the Museum of Natural History auditorium. Subject: "The Problem of Portal Hypertension in Relation to Hepato-Splenopathies." The late E. Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this annual lectureship in surgery a few years before his death.

The offer of the Variety Club to contribute either \$160,000 or \$165,000 toward construction of a heart hospital on the University of Minnesota campus was accepted by the Board of Regents at its March meeting after recommendation by President Coffey and Dr. Diehl, dean of medical sciences. The offer is predicated on the possibility of obtaining federal funds. The Variety club also offered to contribute \$25,000 a year toward the support of the hospital and expressed an intention to increase that amount.

The Montana and the North Dakota State Medical Associations' Annual Meetings have been cancelled at the request of the ODT. The probability is that meetings of the Houses of Delegates for both states will be announced later.

The 44th semi-annual meeting of the Montana Academy of Oto-Ophthalmology was held at Great Falls, February 18-19, 1945. The subject of "Contact Plastic Lenses" was discussed by Al Anderson with the aid of moving pictures and slides. Dr. G. A. Lewis of Roundup was elected president and Dr. Fritz D. Hurd of Great Falls, secretary.

At the recent meeting of the Montana Public Health League a constitution and by-laws were adopted and future league activities were planned. Dr. J. M. Flinn who represented the Montana Medical association announced the objective of the league was largely to raise health standards through education of the public to an appreciation of the true significance of the professions of medicine, nursing, dentistry and pharmacology, and to the necessity of supporting laboratories, etc., and of opposing objectional legislation. The meeting was attended by representatives from eleven Montana cities.

Emil Hanson, superintendent at the hospital at Fergus Falls, has accepted the position of superintendent of the Winona general hospital succeeding George Edblem, who has taken a similar position at the Swedish American hospital at Rockford, Illinois.

New York City has started one of the largest mass movements for the prevention and cure of civilian tuberculosis yet seen in this country. All school staffs—public, private and parochial schools—are to be x-rayed with the board of education granting leaves of up to two years for teachers found suffering from active tuberculosis. It is expected that the examinations at 500 a day will be completed by summer. The health department estimates that of the 60,000 persons to be examined no more than 200 cases will be found suffering from the disease.

On the basis of data available from different parts of the country it is clear that there was a definite increase in the death rate from tuberculosis in many of the industrial cities in the north-central and northeastern part of the country last year, with a normal decrease in other sections. In Massachusetts the increase has been largely among the older age groups with excess among males. A larger number than usual of tuberculosis patients are refusing sanatorium treatment and a certain number are leaving the sanatoriums, against advice, to take jobs at the high wages now available.

The Upper Mississippi medical society (Minnesota) met in Brainerd February 10 and heard Dr. Haven Emerson of the New York City board of health give a paper on health problems. Officers elected were Dr. J. A. Thabes, Jr., president, Dr. A. Lenarz, vice president, and Drs. R. D. Hanover and G. I. Badeux, secretary-treasurer.

Dr. and Mrs. Estrem of Fergus Falls, Minnesota, have four sons, two of whom are physicians, all of whom are in service. Dr. Robert Estrem is in the medical corps in France, Dr. Ralph Estrem has been assigned to act as resident at Ancker hospital, St. Paul, until July when he goes back into the army. Lieut. Paul Estrem, a navigator and bombardier, has been reported missing in action over Germany as of December 23.

Dr. R. R. Randall of Miles City was elected president of the Southeastern Montana medical society at its annual meeting held at Terry in January. Other officers elected were Dr. B. R. Tarbox of Forsythe, vice president, Dr. I. J. Bridenstine of Terry, secretary.

Dr. Glenn Carmichael of Butte, Montana, has been called to the service. He has been assigned to the Army-Navy hospital at Hot Springs, Arkansas, and will be chief of the women's division.

Among the bills signed recently by Governor Sharpe of South Dakota is one that prohibits county hospital discriminations against practitioners other than M.D.s. This sounds ominous, and a little education of South Dakotans would seem to be in order.

Dr. R. M. Ferguson, senior assistant surgeon (reserve) in the U. S. public health service, has assumed his duties as director of the Sioux Falls health department. Dr. Ferguson comes from Joplin, Missouri, where he was health officer of Jasper county.

Recently returned from Brazil is Dr. Eugene Kisch, associate in orthopedic surgery at the N. Y. Hospital for Joint Diseases, who was invited by the Brazilian society for tuberculosis to assist the Brazilian government in designing new tuberculosis hospitals.

Dr. W. L. Wallbank, superintendent of the North-Dakota state tuberculosis sanatorium at San Haven addressed the Northwest district medical society at Minot March 22 on the subject "New Developments in the Home Care of Tubercular Patients." The meeting was held at St. Joseph's hospital, with the program in charge of Dr. Harmon Brunner. Dr. S. G. Clayman, a contributor to this issue, presented a clinical case at the meeting. He is a member of the American College of Chest Surgeons. Dr. Wallbank is a member of the advisory board of the National Trudeau society.

The public health service rank of Dr. Herman E. Hilleboe, also an April contributor, is medical director, which is the equivalent of colonel in the army or captain in the navy. Together with Dr Russell H. Morgan, medical officer-in-charge of radiological section, tuberculosis control division of the United States public health service, Dr. Hilleboe is co-author of Mass Radiography of the Chest. The book includes administrative and technical information on the problem of all forms of radiography based upon experiences of the public health service over the last five years and Dr. Morgan's unpublished experimental work in radiography at the University of Chicago.

Dr. Laurence F. Flick, whose work in the cause of tuberculosis prevention culminated in the national effort under the auspices of the National Tuberculosis Association has been memorialized by his daughter Ella Marie Flick in a book, *Beloved Crusader*, published by Dorrance & Company of Philadelphia in 1944. It is, in effect, a 56-year record of the fight against phthisis.

Word has just been received that the Annual Meeting of the National Tuberculosis Association scheduled for Buffalo, N. Y., in June, has been cancelled on vote of the executive committee.

According to the Department of Commerce Bureau of the Census the number and percentage distribution of hospitals and sanatoria in this country in 1939 devoted to tuberculosis was as follows: Total number, 492 (6.8% of all hospitals). Government, 330 (18.8%). Non-profit, 111 (3.7%). Proprietary, 51 (2.0%). From the same source it is disclosed that the death rate from tuberculosis per 100,000 estimated population as compiled by states that register such figures was (out of a total of 1,719.1 for all causes) in 1900, all forms of tuberculosis 194.4, tuberculosis of the respiratory system 174.5, other forms of tuberculosis 19.9. In 1943, out of a total of 1,089.5 for all causes, tuberculosis in all forms was represented by 42.6, of the respiratory system by 39.1, other forms 3.4.

The American College of War Surgeons has deferred for the time being its 1945 series of war sessions, one of which meetings was to have been held in Milwaukee, on account of the armed services' demands on transportation facilities and hotel accommodations.

In a nation-wide broadcast, Dr. Irvin Abell, Louisville, Kentucky, chairman of the board of regents of the American College of Surgeons, stated that the development of surgery has reduced the death rate of war wounded in army and navy hospitals to three per cent against eight per cent in World War I.

#### SUPPORT

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From the West Coast over 200 pints a day of whole blood is sent to the Pacific by plane. Daily flights with whole blood donated in New York, Boston and Washington cross the Atlantic and are ready for use within twenty-four hours.

The American College of Chest Physicians, with a membership in twenty-three countries, has cancelled its annual meeting scheduled to be held at Philadelphia, June, 1945. The Executive Council of the College voted to hold a business meeting of the Board of Regents at Chicago, June 17th.

#### Necrology

Dr. John G. Thompson, 64, Helena, Montana, died at his home February 19. Dr. Thompson had practiced in this region for thirty-seven years.

Dr. Louis Ramaley, 72, St. Paul, Minnesota, died February 5, in Mounds Park hospital. Dr. Ramaley became a medical examiner for the City Health bureau in 1924 and served for 20 years.

Dr. A. A. Cameron, 51, Rainy River, Ontario, died suddenly on a Winnipeg street February 13. Dr. Cameron had been working for the army in Winnipeg for the past few months, and had recently moved to that city from Rainy River, where he was widely known.

Dr. Harlow N. Orton, 86, died in San Francisco recently. He practiced in Minneapolis for many years and retired in 1923.

Dr. A. L. Kyllo, 57, Superior, Wisconsin, health officer of that city, died at the veterans' hospital in Fort Snelling on February 18, after a sudden illness.

Dr. Erik Engson, 91, Lake Bronson, Minnesota, died at the Hallock memorial hospital on February 7.

Dr. Lewis L. Mayland, 74, Great Falls, Montana, died at a local hospital March 6, following a month's illness. Dr. Mayland was born in Minnesota, was graduated from its university and practiced in that state until 1910, when he went to Montana. He was active in local political circles and at one time was candidate for mayor of Great Falls.

Dr. Arthur Edward Smith, 65, Minneapolis, Minn., died in the Northwestern hospital February 16 from a carcinoma.

## Surgical and Hospital Equipment Repairs

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#### Advertisers' Announcements

#### COMPOUND SULFALLANTOIN SOLUTION SUGGESTED FOR EENT DOCTORS

In his book entitled, Sulfonamide Therapy in Medical Practice, the author, Dr. Frederick G. Smith, devotes several pages to an article by Dr. Joseph S. Stovin, which appeared in the EENT Monthly nearly two years ago and which always arouses great interest among specialists in that line.

Dr. Stovin's paper is on his experience with the proprietary Sulfallantoin manufactured by Schuylkill Chemical Company of Philadelphia. He states that he has used it in both powder form and in compound solution which he specified (Sulfallantoin, 40 gms.; Clorobutanol, 2.0 gms.; sodium chloride, 4.5 gms.; distilled water, 500.0 cc.), and that he secured good results both from the standpoint of cleating up the infection and facilitating healing, finding that in acute infections where there is massive edema of the tissues, a preliminary shrinkage with ephedinie is advisable as an adjuvant to the vasoconstrictive property of Sulfallantoin and that where instillation of Sulfallantoin into the sinuses was attempted, he applied occaine first, both for its anesthetic effect and to get the maximum opening of the sinus outia. Dr. Stovim adduces ten case reports and in his conclusion states that Sulfallanton has proved its worth in all types of sinusitis of infectious origin and that because of the ease with which it can be introduced into the nasal cavity and sinuses, it should be given a trial before more radical therapeutic procedures are undertaken.

#### UPJOHN PERSONNEL PROMOTION

Physicians in this area will be interested in the progress of Fernon E. Fox of the Upjohn Company, Kalamazoo, Mich. He started work in 1930 as a saleman in the Billings, Montana territory and traveled out of the company's Kansas City branch for ten years, becoming sales manager for government accounts in 1942, two years after moving to the home office. He was appointed sales manager for the company's Minneapolis branch the first of the year and on March 1 came back to this region.

#### BURROUGHS WELLCOME'S "BOROFAX"

"Borofax" Borated Ointment, widely used in the prevention of diaper rash, is being presented to the public in Parents' Magazine, Hyggia and Congratulations as a soothing emollient to help prevent and relieve baby's skin irritations, thereby enabling busy mothers to maintain a smooth household routine. Available to pharmacies is a great variety of dealer helps including folders and leaflets. These may be secured by druggists or physicians through the company's wholesalets, members of its representative staff or from the home office in New York City.



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#### PENICILLIN TABLET DEVELOPED FOR ORAL DOSAGE

It was announced recently by American Home Products Corporation that Wyeth Incorporated, a wholly-owned subsidiary, whose main laboratories are in Philadelphia and vicinity, had placed all of its warehouses in key centers of the country in readiness for national distribution of penicillin for civilian use on the lifting of WPB restrictions, March 15.

The Wyeth laboratories, since the early years of the war, have been a major producer of penicillin, supplying large quantities of the wonder drug to the armed forces in all parts of the world, and developing processes for production and stabilization which will greatly enhance the drug's civilian use.

Chief of these innovations, a new container called the "Vipule," combines the features of the vial and ampule. The "Vipule" has been developed by the laboratories to guard the potency of the penicillin so that it will remain stable for long periods of time. The "Vipule" method of packing furnishes a sterile product that yields a laboratory-fresh solution of peni-cillin at time of use under all conditions. One "Vipule" con-tains 100,000 Oxford units of penicillin, a second "Vipule" a sterile salt solution. An ingenious method of transferring the salt solution to the dry, porous penicillin insures the preparation of a sterile penicillin solution without exposure. This is not possible when a syringe is used in the ordinary way.

Wyeth will be ready for national distribution with the first oral penicillin tablet when the allocation of penicillin for oral-use

is released by WPB shortly.

#### SHARP & DOHME CELEBRATES 100TH ANNI-VERSARY OF FOUNDING

In 1842 a young Quaker, Alpheus Phineas Sharp, was the first graduate of the Maryland college of pharmacy. Three years later he opened a drug store in Baltimore which was destined to become the pharmaceutical and biological laboratories of Sharp & Dohme of today, a leading industry of Philadelphia,

In 1852 a boy of fifteen came to druggist Sharp and asked for a position as apprentice. The boy was Louis Dohme. It was the beginning of a lasting friendship and firm business relationship. Dohme, too, attended the Maryland college of pharmacy and in 1860, three years after graduation, the firm name was changed to Sharp & Dohme. Meanwhile Charles Dohme, younger brother of Lewis, followed suit, joining the company in 1862. His son, Dr. Alfred R. L. Dohme, later became head of the company and is still a director. Dr. Dohme became a member of the revision committee of the U. S. Pharmacopoeia and remained on it for thirty years.

Both senior Dohmes became presidents of their alma mater. Charles Dohme and his son were presidents of the Maryland pharmaceutical and American pharmaceutical associations. Louis Dohme was a member of the U.S.P. revision committee, Charles

chairman of its board of trustees.

The history of Mulford Biological Laboratories is intertwined with that of the Sharp & Dohme enterprise, the H. K. Mulford Company having its origin in one of Philadelphia's oldest drug stores which operated on the same site for about 125 years. The Mulford Laboratories in 1894 produced diphtheria antitoxin, the first domestic product offered commercially in this country. This means of treatment was epoch making, pioneering the way to the development and use of biological products generally. In 1898 the company began the production of smallpox vaccine. In the fall of 1929 the businesses of Sharp & Dohme and Mulford Biological Laboratories were combined.

During the period since amalgamation the company has registered its greatest growth, more than doubling its size and scope and has been so closely identified with the health of the nation in the century now completed that its activities have been characterized as "a century in the conservation of human life."

#### NOT CANCELED

The art contest sponsored by Mead Johnson & Company on the subject of "Courage and Devotion Beyond the Call of Duty" (on the part of physicians) has not been canceled or postponed. The closing date remains May 27, 1946.

There will be no annual exhibit this year of the American Physicians Art Association, due to the cancellation of the American Medical Association meeting which had been sched-

uled to take place in Philadelphia, June 18-22, 1945. For full details regarding the \$34,000 prizes and the "Cour-

age and Devotion" contest, write Dr. Francis H. Redewill, Secretary, A. P. A. Assn., Flood Bldg., San Francisco, Calif., or Mead Johnson & Co., Evansville, Ind.

#### SOAP STILL CLEANS

We have a microscope which is getting along in years, but it is still a good microscope, says the Rocky Mountain Medical Journal.

Four years ago a defect appeared which gradually got worse, and gave us a lot of trouble. We eventually determined that the imperfections were confined to the top lens of the eyepiece. During a period of over three years, we tried to clean the lens with every chemical in the laboratory, short of concentrated acids. But it just got worse and worse.

We called several optical companies to see if they could polish the lens, but we were informed that it would be necessary to send the instrument back to the factory. They thought we might get it back in six months, or perhaps a year.

The other day we decided to wash the lens with soap and water. This wasn't as "scientific" as the other things we had thought of. We put the eyepiece together again, and looked at a smear through it. It was as clear as it had been the first time we used it, 23 years ago.

It seems that there ought to be a moral of some sort

in this little story.

Maybe it is that sometimes we get too "scientific" at the expense of just plain horse sense.

Perhaps it is that life itself need not be as complicated as we humans, with our vaunted intelligence, insist on making it.

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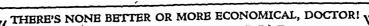
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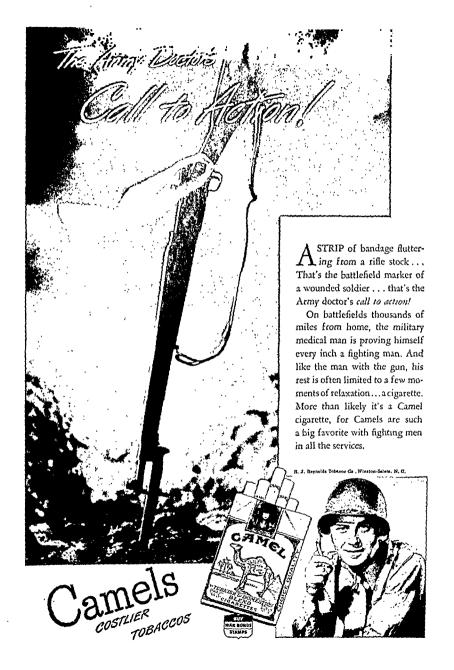


#### SOLAREUM

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\*GOLD, H.; CATTELL, McK.; MODELL, W.; KWIT, N. T; KRAMER, M. L. and ZAHM, W.; Clinical Studies on Digitoxin; With Further Observations on its Use in the Single Average Full Dose Method of Digitalization, J. Pharmacol. & Exper. Therap. 32:187-195 (Oct.) 1944.

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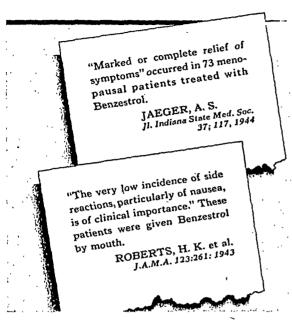
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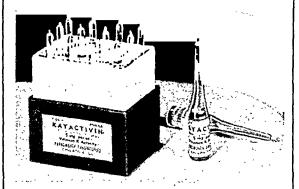
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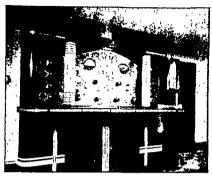
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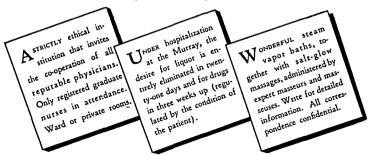
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3. ELIGIBILITY - See Footnote \*

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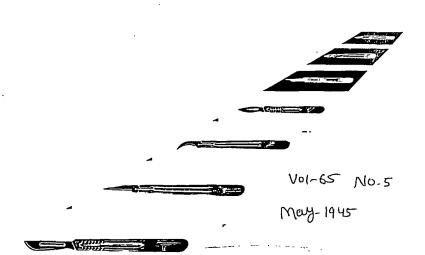
6. JUDGES - See Footnote \*

#### 7. EXPIRATION DATE — See Footnote \*

8. PURPOSE OF THE COMPETITION: To memorialize the heroism and devotion of the medical profession in war and peace. All exhibitors (including prize-winners) shall retain ownership of their pieces. It is understood, however, that the A.P.A.A. shall have reproduction rights and also the privilege, for a period of three years after the close of the contest, of displaying prize-winning objects, at art museums, libraries, county medical societies, medical schools, hospitals, and similar institutions for the purpose of enhancing the public's estimate of the medical profession. The Association shall also have the right to offer institutions such as those mentioned above, the privilege of copying any of the prize-winning objects for use as murals, cornerstones, friezes, architectural designs, etc. — for the purpose of memorializing the medical profession's importance in war and in peace.

\* FURTHER INFORMATION available on request of the Association's Secretary, Dr. F. H. Redewill,

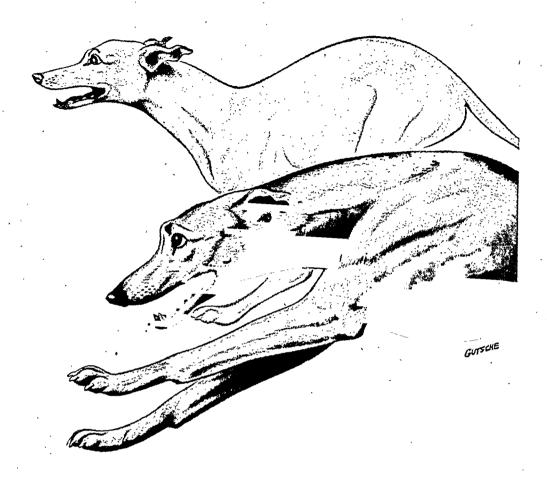
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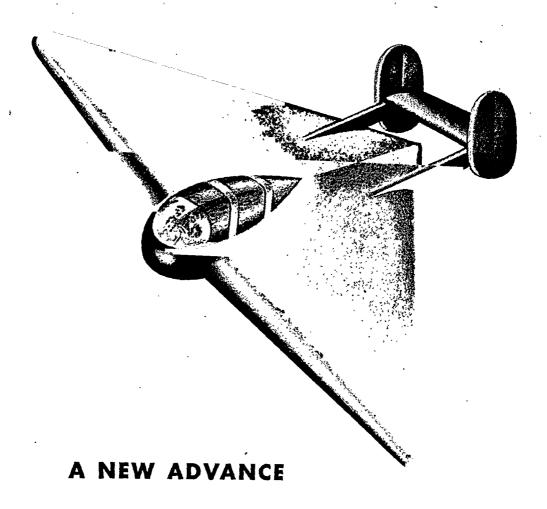
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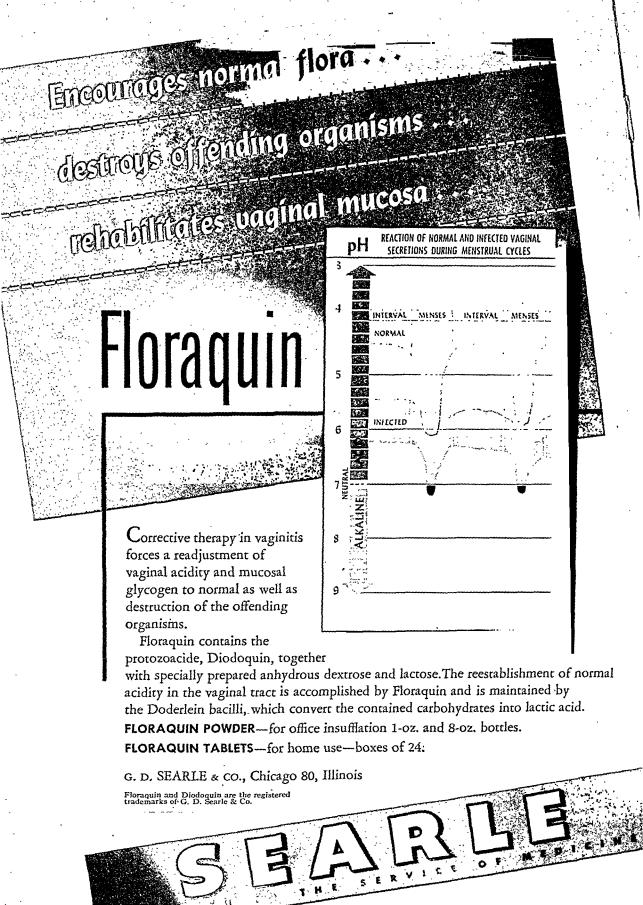
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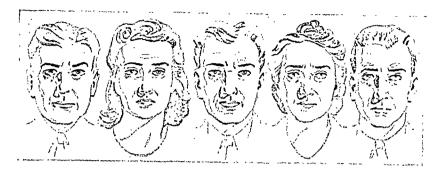
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Rambar, A. C., Hardy, L. M. and Fishbein, W. I.: J. Ped. 23:31-38 (July) 1943 Wolf, I. J.: Ped., 22:707-718 (June) 1943 Wolf, I. J.: J. Ped., 22:396-417 (April) 1943 Wolf, I. J.: J. Med. Soc. New Jersey, 38:436 (Sept.) 1941



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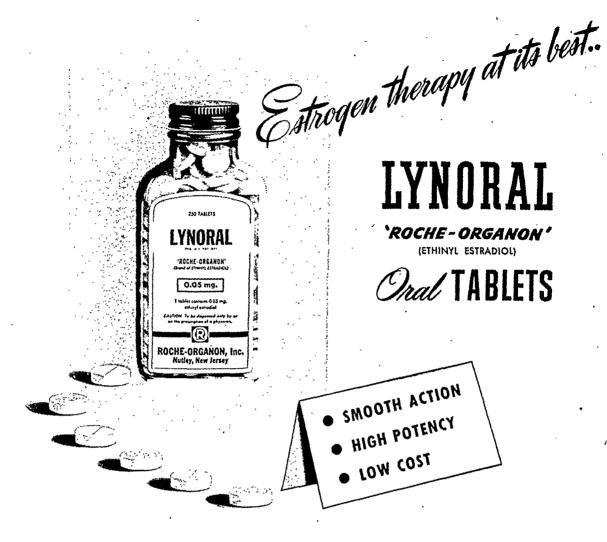
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To provide your patients with estrogen therapy at its best, you can now prescribe LYNORAL 'ROCHE-ORGANON' which is ethinyl estradiol, "the most potent oral estrogen used up to the present time."\* You will find that LYNORAL, while far more potent than stilbestrol, has a smooth effect that is not likely to be marred by unpleasant side reactions such as often follow the use of artificial estrogens. Most patients are exceptionally well pleased with the effects of LYNORAL, and because of its surprisingly low cost, LYNORAL may be prescribed for practically every patient requiring estrogen therapy. LYNORAL is available in scored tablets containing 0.05 mg of ethinyl estradiol, bottles of 30, 60, and 250.

\* F. E. Harding, Am. J. Obst. & Gynec., 48:181, 1944.

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# Effective, safe, Local chemotherapy Local infections in oropharyngeal infections



HIGH and PROLONGED salivary concentration of sulfathiazole is brought directly to the site of oral and pharyngeal infections following the use of-

Even a single tablet of White's Sulfathiazole Gum chewed for one-half to one hour provides a high concentration of locally active sulfathiazole. The medication is brought into immediate and prolonged contact with oropharyngeal areas which are not similarly reached by ordinary measures of topical chemotherapy. Moreover, resulting blood levels of the drug, even with maximal dosage, are so low that systemic toxic reactions are virtually obviated.

INDICATIONS: Local treatment of sulfonamide-susceptible infections of oropharyngeal areas:

- a. acute tonsillitis and pharyngitis;
- b, septic sore throat;
- c. infectious aingivitis and stomatitis:
- d. Vincent's disease

DOSAGE: One tablet chewed for one-half to one hour at intervals of one to four hours depending upon the severity of the condition.

Available in packages of 24 tablets, sanitaped, in slipsleeve prescription boxes.

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IMPORTANT: Please note that your patient requires your prescription to obtain this product from the pharmacist.

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concentration of locally active cent) that is maintained throughout the chewing period.

Low (negligible) Systemic Absorp-tion: Blood levels of the drug, even when maximal dosage is employed, are almost negligiblerarely reaching 0.5 to 1 mg. per



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Headaches of reflex origin are a puzzling and troublesome problem. Their origin may be from the eyes, the nasopharynx, the vascular system, the gastrointestinal tract or may be quite obscure.

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For such helpful therapy, 'Tabloid' 'Empirin'. Compound is a time-tested, efficacious agent. Its acetophenetidin and acetylsalicylic acid work synergistically for headache relief. Its caffeine combats depression.

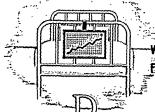
Each product contains acetophenetidin gr. 2½ (0.162 gm.), caffeine gr. ½ (0.032 gm.), acetylsalicylic acid gr. 3½ (0.227 gm.). Also 'Tabloid' 'Empirin' Compound with Codeine Phosphate, gr. ½, gr. ¼, and gr. ½.

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ADMINISTRATION may be by the intravenous, subcutaneous, or intrasternal route.

PARENAMINE is assiduously checked

by laboratory procedures, animal testing, and injection of full therapeutic doise clinically to ensure its uniformity, sterility, and freedom from progens.

INDICATED in protein deficiencies and conditions of restricted intake,

take, increased need, or excessive loss of proteins. Patticularly useful in preoperative and postoperative management, pregnancy, extensive burns, delayed healing, gastro-intestinal disorders, cirrhois, nephrosis, fevers and other hypermetabolic states.

#### GUETHERGAGE AND REFERITE OF CHANGAL PAREE WILL LEGADEVEND ON REGULET

## LOST

Approximately 37% of the Calcium salts found in vegetables are lost in cooking. Utilization of the Calcium may also be incomplete if the supply of vitamin D is inadequate.

# Calciwafers & Calcicaps

#### ALTERNATE DOSAGE FORMS

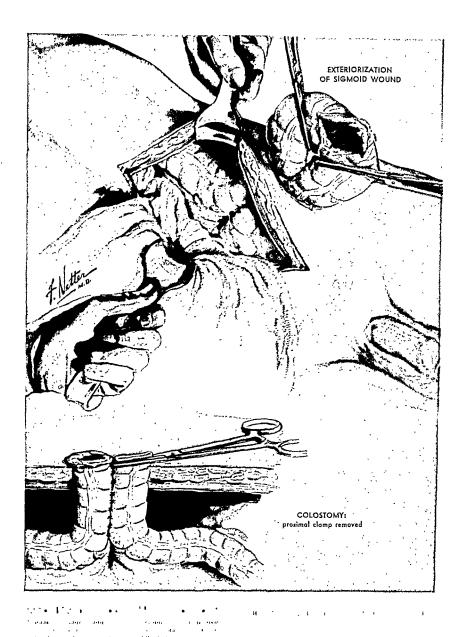
Supply Calcium and Phosphorus with enough Vitamin
D for the absorption of the Calcium provided
but also for the Calcium already in the diet.

CALCIWAFERS CALCICAPS

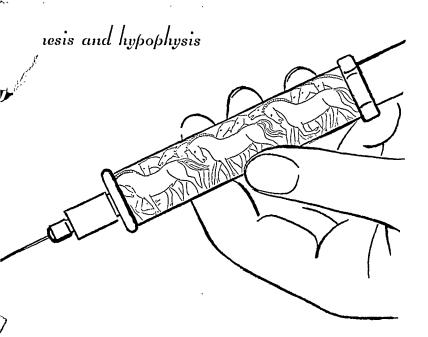
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Among notable recent advances which have brought endocrinology from the speculative realm into the practical, Pituitary Gonadotrophin Squibb—a true gonadotrophin extracted directly from equine hypophysis—is of particular value in primary amenorrhea, where the response to this type of stimulation "is often more permanent than with substitution therapy; certainly, it is a more

physiological and rational approach"1

A highly stable, purified preparation containing both follicle-stimulating (IH) hormones, with predominant amounts of the former, Pituitary Gonadotrophin Squibb is biologically standardized in rat units. Supplied in dry form in 5 cc. rubber-diaphragm capped vials containing 125 units (25 units per cc.)

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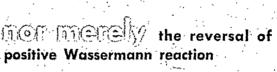
For further information, address Squibb Professional Service Lings, 115 Fifth Avenau New York 22, N Y 1. Rakoff, A E Med. Clin, 11, Apr. 122, 1182 2 15

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## ANTISYPHILITIC THERAPY

ochetes alone not on disappearance of spir-



whether the treatment is such that within the shortest possible time the patient receives maximum protection against relapse and the infection of others.



PEOPLE who feel well balk at the idea of taking weekly injections, particularly if the injections are painful or make them feel ill. Therefore, once the early signs of syphilis disappear, many patients become indifferent to treatment. A recent survey shows that:

only 1 out of 4 clinic patients with early syphilis, undergoing the standard 70week course, continues treatment long enough to receive minimal protection against infectious relapse. A realistic approach to the problem is previded by the use of Mapharsen, a rapidly administered arsenical that minimizes the discomfort of injections; one which is well tolerated by the patient; and one which gives a high degree of protection in a short period of time. Consideration of these factors increases the possibility of securing sufficient cooperation on the part of the patient to insure the continuance of therapy beyond the point where relapse or the infection of others is possible.



Whatever method you choose, use

Meta-amino-para-hydroxyphenylarsine oxide

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SPECIAL PEDIATRIC NUMBER Edited by Irvine McQuarrie, M.D.

#### May, 1945

	<b>,</b> ,	
	Some Problems in Fat Metabolism in Children, Arild E. Hansen, M.D., Ph.D.	
	Conversion Hysteria in Children, Reynold A. Jensen, M.D., Alvin D. Wert, M.D.	_ 17:
	Dental Arch Development as a Guide to Time for Malocclusion Correction,	
	Joseph T. Cohen, D.D.S.	. 170
	Congenital Atresia and Congenital Tracheo-esophageal Fistula,	
	N. Logan Leven, M.D., Bernard G. Lannin, M.D.	. 179
	Convulsions in Infants and Children: Age and Etiological Incidence, E. Perry Crump, M.D	. 182
	The Reading Disability: A Pediatric Problem, Theta H. Wolf, Ph.D.	. 184
	Jaundice in Infancy and Childhood, R. V. Platou, M.D., M.S. (Ped.),	
	Samuel B. Nadler, Ph.D., M.D.	. 186
	Chickenpox Encephalitis, Elizabeth C. Lowry, M.D.	191
	A Third Epidemic of Primary Virus Pneumonitis among Infants in Minnesota,	
	John M. Adams, M.D.	192
	Intratibial Infusions in Children, Robert D. Semsch, M.D., Albert V. Stoesser, M.D.	104
	Rubella in Pregnancy and Congenital Malformations, Forrest H. Adams, M.D.	107
	The Management of Rheumatic Fever, Paul F. Dwan, M.D.	100
	The Physician and the Child with Defective Speech, Frances M. Brown	200
	MINNESOTA STATE BOARD OF MEDICAL EXAMINERS, List of Physicians Licensed Feb. 16, 1045	201
X	American Student Health Association Newsletter and Digest of Medical News	202
	BOOK REVIEWS	203
	EDITORIALS	
	The Etiology of Congenital Malformations	204
	Federal-State Programs for Child Health and Medical Care	205
	Meet Gur Contributors	206
	NEWS ITEMS	217
	NECROLOGY	12
	Copyr 1915 by Lancet Pub Co	

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75th Year of Publication

## 29 WORDS tell the story...

Clinical tests\* showed that when smokers changed to PHILIP MORRIS Cigarettes, substantially every case of irritation of the nose and throat due to smoking cleared completely or definitely improved.

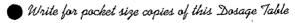
\*Laryngoscope, Feb. 1935, Vol. XLV, No. 2-149-154.

TO THE PHYSICIAN WHO SMOKES A PIPE: We suggest an unusually fine new blend—COUNTRY DOCTOR PIPE MIXTURE. Made by the same process as used in the manufacture of Philip Morris Cigarettes.

## Senicillin DOSAGE TABLE\*

INDICATIONS	INITIAL DOSE (UNITS)	CONTINUING DOSAGE (UNITS)	UNITS IN 24 HR.	REMARKS
Serious Infections (staph- ylococcus, clostridium, hemolytic streptococcus, anaerobic streptococcus, pneumococcus, gonococ-		(a) Intravenous drip: 2000 to 5000 every hr.	40,000 to 120,000 or more	(a) Dissolve ½ of 24 hr. dose in 1 liter (1000 cc.) normal saline; let drip at 30 to 40 drops per minute.
cus, anthrax, menin- gococcus)  Adults and children	15,000 to 20,000	or (b) intramuscularly: 10,000 to 20,000 every 3 or 4 hr.	40,000 to 120,000 or more	(b) Concentration: 5000 U. per cc. normal saline.
		or (c) Intramuscular drip	40,000 to 120,000 or more	(c) Total daily dose in 250 cc. normal saline.
Infants	5000 10 10,000	3000 to 10,000 in- tramuscularly every 3 hr.	20,000 to 40,000 or more	Each dose in 1 or 2 cc. of normal saline.
Chronically infected com- pound injuries, osteomy- elitis, etc. Adults and children	5000 to 10,000	10,000 every 2 hr. or 20,000 every 4 hr. intramuscularly or in- travenously. Larger doses may be neces- sary at times.	40,000 to 120,000 or more	Concentration for intramuscular inj.: 5000 U. per cc. normal saline. For intravenous inj.: 1000 to 5000 U. per cc. Supplement with local treatment.
Sulfonamide Resistant Gonorrhea	20,000 every 3 hr. intra- muscularly for 5 doses		100,000	Results of treatment should be controlled by culture of exudate.
Empyema Adults and children	30,000 to 40,000 once or twice daily into enspyema cavity		30,000 to 80,000	Dissolve in 20 to 40 cc. normal saline and inject into empyema cavity after aspiration of pus.
Meningitis Adults and children	10,000 once or twice daily into subarachnoid space or intracisternally		10,000 to 20,000	Concentration: 1000 U. per cc. normal saline.
Bacterial Endocarditis Adults and children	25,000 to 40,000	25,000 to 40,000 every 3 hr. intra- muscularly	200,000 to 300,000	Continuous treatment for 3 weeks or longer. In a few cases the intravenous drip is more advantageous.

\*Based upon recommendations by Chester S. Keeter, War Production Board Penicillin Leaflet, Apr. 1, 1945; and by Wallace E. Herrell and Roger L. J. Kennedy, Journal of Pediatrics, 25.505, Dec., 1944.





Penicillin Sodium-Winthrop is available in vials (with rubber diaphragm stopper) of 100,000 Oxford Units.

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Views of the left hand of a male, aged 29 years; illustrating a late atrophic arthritis; duration of disease, 9 years; occupation, food storage, refrigeration.

This picture shows a terminal stage of rheumatoid arthritis. It illustrates, in addition to usual features of discoloration of the skin and wasting of the soft tissues. the presence of a cyst-like but actually a subcutaneous nodule on the second proximal interphalangeal joint of the index finger. Such nodules of a tubercle type occur, according to authorities, in about 10 per cent of patients with this disease. The fingers show atrophic changes involving particularly the third or middle digit, General involvement; including an ankylosing spondylitis or poker spine and locked jaws. This patient is also bedridden. X-ray shows marked subluxation in the metacarpal phalangeal articulations. There is irregularity of the articular aspects of the proximal interphalangeal joints and pronounced decrease of the distal interphalangeal joints. There is also loss of joint space of the carpal bones and resultant ankylosis. Note the generalized decalcification.

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## Why VI-SYNERAL VITAMIN DROPS



### CADUA MINIA

<b>4.</b> 8	ich 0.6 cm	المناه ال
Vitamin I	as marked on dra	
Vitamin R	(fish liver oil concentrate)	<sup>pper, supplies:</sup>
Vitamin P	mamine hydrochlorida	4000 U.S.B
" " " " " " " " " " " " " " " " " " "		~ A'1111i
*********		Mill:
Vitamin D	(gat	··· 4 Milligrame
	ractivated ergosterol)	30 Milligrams
The same company and the same	(activated ergosterol)	570 U.S.P. Units



Vitamin A

Vitamin B.

Vitamin B.

Miacinamide

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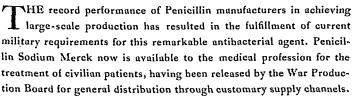
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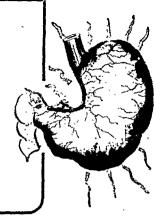
Young's Dilators in children's small and intermediate sizes, sold on prescription only, are available in bakelite; boilable and easily inserted by parent or nurse. Postoperative use of Young's Dilators after pediatric anal surgery to relieve stemosis and attesta of the anus and rectum is also recommended by pediatricians and proceedingsists. Children's set of 4 sizes, \$4.50. Adult set of 4 sizes also available, \$3.75.

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#### Some Problems in Fat Metabolism in Children\*

Arild E. Hansen, M.D., Ph.D. Galveston, Texas

T is a distinct honor to be invited to inaugurate the series of annual lectures which has been made possible by a grant to the Northwestern Pediatric Society from Mead Johnson and Company. This is a special privilege for me for two reasons: first, because of my long and pleasant association with your Society, and second, because some years ago, through the efforts of Dr. McQuatrie, financial support for our research studies in the field of lipid metabolism, which is the subject of this evening's paper, was obtained from the same source.

Perhaps one of the least understood phases of medicine is that which pertains to the metabolism of fatty substances. As physicians we recognize that we are poorly informed concerning diseases involving disturbances in lipid metabolism. The physiologist, biochemist, nutriionist, and pathologist, likewise, have difficulty in understanding both the normal and the abnormal metabolism of fat. In fact, it may be stated that in all likelihood, extensive fundamental scientific and clinical studies will have to be carried out before this complex problem can be clarified. No attempt will be made to review the entire subject of fat metabolism in children, nor to discuss or even to mention all of the diseases in which a disturbance of this process exists. Instead, this discussion will be confined to studies of certain phases of the problem in which the author has had the opportunity to participate during the past few years.

Fats or lipids are characterized as a group by their physical property of being soluble in various organic solvents such as acetone, chloroform, ethyl ether, alcohol,

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and petroleum ether, yet chemically and physiologically the various lipids have relatively little in common. For orientation, a slightly modified Bloor's classification of lipids is presented.

Simple lipids: These are esters of fatty acids with various alcohols.

- Triglyceride fats—esters of fatty acids with glycerol. These are the most abundant lipids in the body as well as in foods and are of nutritional importance even though synthesized by the body.
- Waxes—esters of fatty acids with alcohols (not glycerol). Cholesterol esters in blood and some body tissues. Significance in nutrition not known; probably synthesized by the body.

Compound lipids: These are compounds containing nitrogen bases, phosphoric acid, sugar, sulfuric acid, or amino groups together with fatty acids and alcohols.

- Phospholipids—These contain phosphoric acid, nitrogen base and fatty acid. Lecithin, cephalin, and sphingomyelin—probably synthesized by the body; found in all cell protoplasm, liver, kidney, and brain.
- Glycolipids—These contain carbohydrate, fatty acid, and nitrogen base. Cerebrosides—found mostly in brain and nerve tissue; probably synthesized by the body.
- Sulfalipids and aminolipids—These contain sulfuric acid or amino acids. An ill-defined group of which little is known,

Derived lipids: These are substances derived from the preceding groups by hydrolysis.

1. Alcohols

a) Glycerol—oxidized in body by mechanisms similar to that in oxidation of glucose.

b) Cholesterol-most abundant animal sterol; syn-

thesized by the body.

- c) Phytosterols—abundant in plants, not utilized by animal organism, except ergosterol, when irradiated.
- Bases—These are choline, aminoethyl alcohol, and sphingosine. Of these, choline appears to have nutritional significance and is considered to be one of the components of the vitamin B complex.

Hydrocarbons—such as squalene found in sharks.
 Their significance in human nutrition is not known.

- 4. Fatty acids—substances containing 4 to 24 carbon atoms in chain. Derived mostly from triglycerides, but also from phospholipids and esters of cholesterol. This is the state in which fat is oxidized in the body.
  - a) Saturated fatty acids—even number of carbon atoms in straight chain. The most abundant are those with 16 and 18 carbon atoms. They are derived chiefly from triglycerides; also synthesized by the body.

b) Unsaturated fatty acids

 One double bond fatty acids, of which oleic acid is the most common. They are synthesized by the body and also derived from food.

2) Highly unsaturated fatty acids.

- a) Complex, high-molecular-weight unsaturated fatty acids found especially in fish liver oils; their nutritional significance is not known and their metabolism not understood.
- b) Essential fatty acids. These are linoleic acid, 18-carbon-atom fatty acid with 2 double bonds; and arachidonic acid, 20carbon-atom fatty acid with 4 double bonds in chain.

Those lipids which are of especial concern to us in medicine are the triglyceride fats (often referred to as neutral fat), phospholipids (lecithin and sphingomyelin), cerebrosides (kerasin), cholesterol, and possibly certain of the fatty acids.

Fat is most commonly supplied in the diet and is most abundantly present in the body in the form of the triglycerides. These fats may be readily synthesized. The compound lipids, phospholipids and cerebrosides, are apparently also synthesized by the body and thus are not dietary essentials. The most abundant sterol in the body is cholesterol, which is readily synthesized by humans in contradistinction to those sterols which possess vitamin D activity and for which we must rely upon dietary sources or ultraviolet radiation for normal development. Of the derived lipids, choline, a constituent of lecithin, has been shown from animal nutrition to be a dietary essential. It is sometimes classed as one of the components of the vitamin B complex. The fatty acids, which are derived from triglyceride fats, phospholipids, and cholesterol esters, may be saturated or unsaturated. While chains of from 4 to 24 carbon atoms may be found in these

acids, the most common saturated ones, palmitic and stearic, contain 16 and 18 carbon atoms, respectively, and furnish the chief source of fat calories. The degree of unsaturation of a fat is measured by the amount of iodine absorbed at the double bonds in the carbon chain. The higher the iodine number, the greater is the degree of unsaturation of the fatty acid. Thus we find that oleic and linoleic acids, both containing 18-carbon-atoms, the former with one double bond and the latter with two. have iodine numbers of 90 and 180, respectively; whereas one of the highly unsaturated fatty acids, arachidonic acid, contains 20 carbon atoms with four double bonds and has an iodine number of 324. The unsaturated fatty acids appear to have special significance in this problem of fat metabolism as the animal organism, although apparently able to synthesize fatty acids with one double bond, is not able to synthesize those with two or more unsaturated linkages. This inability, together with the possible need of the body for certain of these fatty acids with more than one double bond has given rise to the expression of "essential fatty acids." The essential nature of linoleic and arachidonic acids in animals was first demonstrated by Dr. George O. Burr of the University of Minnesota.

The problems of fat metabolism run the entire gamut from the significance of the character and amount of dietary fat to the complex changes which may develop in individual body cells. In this presentation of certain studies in which the author has participated, the specific problems to be discussed involve: 1) fat absorption, 2) the serum lipids, 3) tissue lipids, and 4) the unsaturated fatty acids.

ABSORPTION OF FATS

Very little change in fat takes place in the stomach . other than the actoin of acid on the lipid-protein complex which frees some fatty acids. After the fat leaves the stomach these fatty acids together with the alkaline reaction in the duodenum, the bile salts present, and the motility of the intestines effect the emulsification of the remainder of the fat, which allows the fat splitting enzymes from the succus entericus and pancreas to act upon it. Although the bile plays a very important role in the mechanism of fat absorption, the fact that this process can take place in its absence, was demonstrated by a study of the serum lipids in two infants with congenital atresia of the bile ducts. These infants were about 3 months old and were followed for a period of approximately 5 months. Four hours after ingestion of a fatty meal consisting of 35 per cent cream, the total fatty acids per 100 cc. of serum showed an increase of 143 mg. for one infant (B.G.) and 74 mg. for the other (D. H.). In both infants at the end of the fourhour period, there was a decrease in the iodine number of the serum fatty acids in keeping with the low degree of unsaturation of the fat given. This study indicated that these infants were able to absorb fat in spite of the absence of bile from the intestinal tract, although the actual increase in blood fat was not as great as that observed in the few normal infants of this age whom we had had the opportunity to study. The fasting fatty acid level in these two patients, however, was much higher

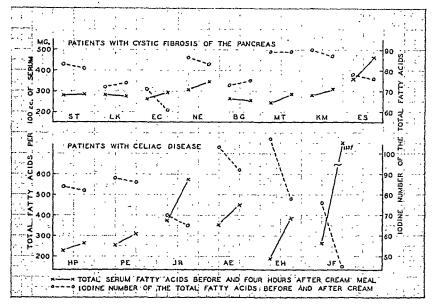


Fig. 1. Results of fat absorption studies in fourteen children with symptoms of the celiac syndrome

(846 and 803 mg. per 100 cc. serum, respectively) than that found normally. In obstructive jaundice in adults, as shown by Epstein and Greenspan (Arch. Int. Med., 58:860, 1936), cholesteremia commonly occurs. Thus the finding of a value of 370 mg. total cholesterol in one of our patients (D. H.) was not surprising. The cholesterol ester value in this patient, however, was not increased; in fact, this was but 27 per cent of the total cholesterol. Undoubtedly the low relative cholesterol ester value may have resulted from a biliary cirrhosis, as it is well known that the relative cholesterol ester values are decreased in the presence of liver damage. In this patient, therefore, the elevated total fatty acid level was not due to high cholesterol ester values. Fractionation of the blood lipids in both patients disclosed an excessive amount of phospholipid fatty acid. These values ranged from 355 to 462 mg. per 100 cc. in contrast with a normal average of about 120. Likewise, these fatty acids were found to comprise from 42 to 58 per cent of the total fatty acids; whereas in normal individuals studied in our laboratory, they were found to be about 30 per cent of the total fatty acids. Since the triglyceride fatty acids were only slightly increased and since in the one patient in which the cholesterol ester values were determined, these were in the range of normal, it appears that a disturbance in the phospholipid metabolism was most likely responsible for the lipemia present. We have seen no reference in the literature to the finding of an increase, either absolute or relative, in the phospholipid

fatty acids in congenital atresia of the bile ducts. Whether the abnormality present in our two cases was due to the absence of bile per se from the intestinal tract or to disease of the liver is yet to be determined.

The exact mechanism by which fat passes through the intestinal membranes has not been worked out, but it is quite generally accepted that this takes place by the phosphorylation and dephosphorylation of the fatty acids in the intestinal mucosa. The pediatrist is becoming increasingly incrested in this mechanism as the importance of cystic fibrosis of the pancreas, a disease entity in which it is involved, becomes more apparent to him. In this disorder, excess quantities of fat in the stool are characteristically found when these patients are subsisting on a normal diet. That this is not due primarily to a lack of pancreatic lipase is apparent from fecal fat analyses, which show that a considerable portion of the fat present has been split into fatty acids and soap, presumably by the lipase of the succus entericus. Special study of fat absorption in patients with the celiac syndrome was undertaken in the Lipid Research Laboratory of the Department of Pediatrics at the University of Minnesota by Dr. Luigi Luzzattı and the author. In fourteen infants and children, in each of whom the diagnosis of celiac syndrome had been made, the fatty acids in the various fractions of the serum lipids were determined before and four hours following a cream meal. Eight of these patients appeared to have cystic fibrosis of the pancreas, and the remaining six presumably had celiac disease. Of those with cystic fibrosis of the pancreas, the diagnosis was proved in four by necropsy findings and in four by clinical and laboratory data which included the response in the duodenal juice to secretin administration. The data for the determinations of total serum fatty acids and iodine numbers in these children are graphically presented in figure 1. As will be noted the level of the total fatty acids in all these patients was within normal range. Seven of them, however, had little or no increase in the total blood fatty acids after the fat meal, and although the eighth showed a definite rise, she was proved upon autopsy to have cystic fibrosis of the pancreas. As regards the remaining six children with celiac disease shown in the lower half of figure 1, the character of the response of the serum lipids to the fatty meal appeared to reflect the subsequent course of the disease. In the two patients (N.P., P.E.) who remained in only fair condition, very little rise in the blood fatty acids occurred, whereas in the other four who showed marked clinical improvement, the rise in serum fatty acid level was considerable. The iodine number changes confirmed the findings regarding the behavior of the total fatty acids: if no fat increase in the blood was found after the cream meal, no particular change occurred in the degree of unsaturation of the fat; but if the blood fat was increased, the iodine number changed according to the kind of fat ingested by the infant.

Our findings suggest that study of the serum fats before and following ingestion of a fatty meal is of some prognostic significance. In these studies of the blood lipids in patients with celiac syndrome by Luzzatti and the author, the serum fat was fractionated into the acetone insoluble (phospholipid) fatty acids and the acetone soluble (triglyceride plus cholesterol ester) fatty acids. The level of the total fatty acids and the fatty acids in the various fractions was not abnormal, showing that, although these patients physiologically were maintained under conditions similar to those which would be produced by a diet very low in fat, the body was able to synthesize sufficient fat to keep all these fat levels within normal range. The iodine numbers of the fatty acids, however, were uniformly below normal in all fractions, and this fact suggested, as we have postulated before, that the human body is not able to synthesize the highly unsaturated fatty acids. Throughout all of these studies, it was found that the iodine numbers of the total fatty acids and the fatty acid fractions gave valuable information regarding the condition of the patient. This was particularly apparent in one eight-year-old girl (A.E.), in whom these values defintiely reflected the clinical course of the patient. On first examination, the rise in total fatty acids after the ingestion of a cream meal was well within normal limits, and the child enjoyed very favorable progress. Ten weeks later when the fat absorption curve was repeated, no rise in blood fat occurred, and during the ensuing interval, this patient suffered a relapse with decrease in weight, anorexia, and lassitude. At the time the patient was doing well, the degree of unsaturation of the serum fatty acids was within normal limits; but ten weeks later, before any clinical evidence of the decline was manifest, a definite decrease in the iodine number

was noted. One month later, the iodine value had fallen to a still lower level. At the time this patient was doing well, crude liver extract plus vitamin B complex, parenterally, were being used. It may be that further and more complete lipid metabolism studies carried out in patients with celiac disease who appear to be benefited by such therapy might give some lead to a better understanding of the disease and to the entire mechanism of fat absorption.

It is well established that after leaving the intestinal mucosa, digested fat enters the lymph spaces, goes through the lymph channels to enter the cisterna chyli, passes on through to the thoracic duct, and empties into the venous circulation. However, it is still controversial whether or not some of the fat may be absorbed directly into the blood stream in a manner comparable to the absorption of simple sugars and amino acids. An unusual opportunity was afforded us to study this problem when a three-week-old infant with chylous ascites was admitted to our hospital. On two occasions the serum lipids of this patient were studied before and after administration of 4 ounces of 35 per cent cream. In neither instance was there a change in the amount or the degree of unsaturation of the total fatty acids or those in any of the lipid fractions. In addition to indicating that lymph channel obstruction was complete in this child, the findings strongly suggested that no fat was absorbed directly into the blood stream. This past fall an attempt was made to transfer a blood-vessel from the thigh into the peritoneal cavity to correct this condition, but the child unfortunately died from the anesthetic while the procedure was being carried out. At the time of death, the child had been under our care since birth, a total of 23 months, during which time he had been maintained on a diet practically devoid of fat. From our observations, we can state that life apparently can be maintained for the first two years even though no fat is included in the diet. Growth and development in this child were fairly satisfactory, but he never did have the appearance of a robust, healthy individual. He was unusually susceptible to respiratory infections and had considerably more difficulty with skin conditions than the ordinary child. A more detailed report of our serum and tissue lipid findings in this patient will be made later when these studies are completed.

#### BLOOD LIPIDS

Numerous studies of the blood lipids have been undertaken to learn something of the mechanisms of fat transport and mobilization as well as the derangements of these in disease conditions. Although several such studies have been made in our laboratories, attention here will be given only to one, in which instance we had the opportunity to study the type of lipemia commonly associated with nephrosis. In this latter condition the blood fats may rise to very high levels, and the value for the total fatty acids, phospholipid, cholesterol, and cholesterol esters are all increased. It is often stated that the increase in blood fat in this condition may be a compensation for the decreased osmotic pressure caused by the low plasma proteins, but this concept has not been proved. We had the opportunity to make a rather complete serum lipid

analysis in an infant who was suffering from a marked hypoproteinemic edema which developed in a case of cystic fibrosis of the pancreas due to poor absorption of protein. The plasma protein levels in this patient were: total proteins 3.39, albumin 1.98, globulin 1.41 grams per 100 cc. As shown in our series of cases with fibrosis of the pancreas discussed above, although unable to absorb fats normally, patients with this condition are able to synthesize them. Therefore, were the lipemia which develops in nephrosis on a simple compensator basis, with the low plasma protein levels found in this patient, we should have expected to find a considerable rise in the serum fatty acids. However, these remained within normal range, values being as follows: total fatty acid 253, acetone soluble fatty acids 163, acetone insoluble fatty acids 75, total cholesterol 98, and cholesterol ester 50 mg. per 100 cc. Further evidence that the amount of fat available to the body, as influenced either by the dietary intake or absorption of the fat, does not affect the high blood fat levels as seen in nephrosis was indicated by our failure in one acute experiment in a patient with nephrosis to reduce the lipemia present by keeping the child on a diet very low in fat. From these studies it would appear that some explanation other than a simple compensatory reaction probably accounts for the increased mobilization of fat in the vascular system in nephrosis.

In connection with the complex changes which may occur in the lipid composition of tissues under various conditions, we wish to cite results of tissue lipid analyses in but one type of disorder. The patient involved was one suffering from a generalized lipodystrophy (lipohistiodiaresis), who, because of almost complete loss of fatty tissue from the body, presented a most bizarre picture. Studies of this patient were carried on in cooperation with Dr. Irvine McQuarrie and Dr. M. R. Ziegler. On histologic examination, no fat cells could be identified. In fact, it was impossible to find any subcutaneous fatty tissue for lipid study, and analysis of perirenal tissue gave findings as low as 0.45 grams of fat per 100 grams of fresh tissue. Normal values for the fat content of subcutaneous tissue as determined in two control subjects were found to be 50.1 and 84.0 gm. per 100 cc. of fresh tissue. Even in a child with lypodystrophia progressiva, lipid analyses of subcutaneous tissue obtained by biopsy revealed the fat content of the tissue to be 4.79 grams per 100 grams of wet tissue as contrasted with an absolute lack in our patient with the generalized lipodystrophy. To date a satisfactory explanation of the specific loss of fat from subcutaneous tissues has not been forthcoming, although attempts have been made to relate this to endocrine, nervous, and tissue enzyme abnormalities.

TISSUE LIPIDS

ESSENTIAL FATTY ACIDS

The last subject to be discussed in this consideration of some of the problems of fat metabolism is that of the so-called essential fatty acids. Although it is generally accepted that the highly unsaturated fatty acids, Imoleic and arachidonic, are essential for normal nutrition of certain species of animals, their exact physiologic role is not known, nor has their essentiality in humans been definitely established. As pointed out by Burr and Burr

in 1929, rats reared on diets extremely low in fat failed to grow normally, developed skin changes, hematuria. and died early. Because of a grant made by the National Live Stock and Meat Board we have been able to study the problem of the unsaturated fatty acids in human nutrition and in the dog as the experimental animal. The author and Dr. Hilda F. Wiese found that puppies fed on low fat diets developed a marked flaky desquamation and dryness of the skin with coarseness of the hair as the most distinct abnormalities. The hair and skin of litter mate control animals given the same diet except for the isocaloric substitution of fresh lard for sucrose remained entirely normal. Serum lipid studies in these animals revealed that the fatty acid levels in the various serum fractions remained within normal limits even though no fat was in the diet. This finding signified that these animals synthesized sufficient fat to maintain normal levels in the blood serum. Determination of the iodine numbers of the fatty acids in the various fractions, however, indicated that highly unsaturated fatty acids were not synthesized by these animals. The fatty acids present as esters of cholesterol showed the greatest difference in the degree of unsaturation in these groups.

Our studies on this phase of fat metabolism in human subjects are comprised of: 1) observation of the child with chylous ascites referred to above over almost a two-year period and of an adult maintained six months on a dute extremely low in fat; 2) study of the serum lipids in eczematous patients and the use of lard and other fats rich in unsaturated fatty acids as chetary supplements in these patients. From our observations of the child with chylous ascites and the adult mentioned above, grant-

fatty acids cannot be synthesized, a subject can be maintained fairly

least for the periods of time which these individuals were under our observation. While the adult subject suffered no untoward effects whatever, it should be noted that the child with the chylous ascites, as mentioned previously, did have more difficulty than the average child with respiratory and skin conditions and did not have the appearance at any time of a healthy, robust individual. On the other hand, from studies of the serum lipids in eczematous patients, the author and co-workers have obtained indirect evidence that these unsaturated fatty acids probably do play some definite role in human nutrition. The majority of infants and children suffering from intractable eczema which were studied were found to have abnormally low iodine numbers for the serum fatty acids, indicating decreased amount of unsaturated fatty acids in their blood sera. In pooled lipid extracts of serum from patients with eczema and from control subjects, Dr. William R. Brown and the author actually found lesser amounts of the unsaturated Innoleic and arachidonic acids, in the serum of the eczema pa-tients. Clinical evidence that these unsaturated fatty acids may be of significance in the maintenance of normal skin functions has been obtained from adding fats such as fresh lard and certain vegetable oils to the diet of these patients suffering from severe eczema Although not all of them responded to this dietary supplement, about one-half of the patients with persistent eczema were definitely improved when one tablespoon of lard two or three times daily was taken for periods of two or more months. The data concerning the blood lipid and clinical studies in these patients with eczema are now being analyzed for the purpose of publication

In conclusion, we may state that much work must be cartied on both in experimental animal and in human subjects before these and other problems in lipid metabolism may be solved. Only by continued cooperative study of the chemical, biologic, and clinical aspects through scientific investigations by physicians, biochemists, and other fundamental scientists will we be able to better understand and hence better deal with the disturbances in fat metabolism which are constantly being encoun-

tered in the practice of pediatrics.

### Conversion Hysteria in Children\*

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AILURE to appreciate the fact that conversion hysteria occurs in children as well as adults is frequently responsible for its being entirely neglected in differential diagnosis. Consequently, treatment of children so afflicted is disappointing to all concerned. Furthermore, when these patients eventually come under the care of a psychiatrist or a psychiatrically oriented pediatrician, the task of rehabilitation is immeasurably complicated.

A survey of the literature 1 from 1930 to 1944 reveals but sixteen titles dealing with the subject of hysteria in children. While reports 2,3 indicate conversion hysteria is commonly encountered among the armed forces in combat, Despert 4 and Gillespie 5 fail to mention it as a significant problem in children subjected to war conditions. The sparsity of references to the subject in the recent literature stands out in sharp contrast to the keen interest manifested during the period from 1873 to 1915.

The experience of the department of pediatrics of the University of Minnesota suggests that conversion hysteria in children is more common than ordinarily suspected and deserves more attention than it has received during the past few decades.

The basis of the present report is a study of sixteen children having a final diagnosis of conversion hysteria. Their ages varied between six and fifteen years. Thirteen were females; three were males. The majority were in the pubertal age group. These findings are consistent with those reported during the years when interest in the subject was at its height. Psychological testing revealed three patients had superior intelligence with the others all earning a rating within the normal range.

Eleven of the patients were hospitalized from one and one-half to sixteen weeks, the average stay being seven weeks. Five patients were placed in a boarding home which permitted frequent visits to the outpatient clinic. The average length of time for those treated on an outpatient basis was four weeks.

#### PRESENTING COMPLAINTS

The presenting complaints at the time of admission are outlined in table 1.

#### TABLE 1 Complaint

Patient 1-Blurred vision, dizziness, slowing of speech and gen-

Patient 1—Blurred vision, dizziness, slowing very eral activity.

Patient 2—Pain in left face, chest, colicky pain in left flank and thigh, inability to move jaws, frequent and painful urination.

Patient 3—Pain in joints and stomach, poor vision, inconstant tingling and prickling of the skin.

Patient 4—Palsy of left arm and leg.

Patient 5—Fainting spells and dizziness.

Patient 5—Palsy of head and extremities, refusal of food and retention of urine.

Patient 7—Spells of unconsciousness, vomiting, headache, pain Patient 7—Spells of unconsciousness, vomiting, headache, pain in neck, delirium.
Patient 8—Blindness in left eye, fainting spells.
Patient 9—Paralysis and pain of hands and feet.

\*From the Department of Pediatrics, University of Minnesota Medical School.

Patient 10-Nervousness, sleeplessness, constipation, urinary frequency, disturbances of sensation and spastic contractures of extremities.

Patient 11—Unconscious spells occasionally preceded by disturbances in smell and hearing, seeing double, gas pains in stomach; and shaking of extremities.

Patient 12—Pain in joints, heart and stomach, left hemiplegia, unable to open eyes or jaws.

Patient 13-Partial loss of vision.

Patient 14-Unconscious spells, weakness, right frontal headache, paralysis of right side.

Patient 15-Contracture of right hand, headache, nervous chills and weakness.

Patient 16-Blindness.

Contrary to popular belief, these patients presented multiple complaints. As will be noted, several offered symptoms of organic illness. The symptoms of Patient No. 2 suggested renal colic. Careful search into the past history revealed that her grandmother, of whom she was very fond, had been treated previously for a kidney stone. The father of Patient No. 4 had a left-sided palsy following a cerebral accident.

By far the greater number of the complaints were referrable to disturbances in the central nervous system. Six patients complained of disturbances in vision, one being totally blind. Two had total blindness in one eye. Complaints referrable to the gastro-intestinal tract, bones and joints, urinary tract, and cardiovascular systems were far fewer than might have been expected.

Careful and repeated physical examinations revealed no suggestive or conclusive explanation for the presenting complaints, except to substantiate their existence. Five of the children with visual disorders had definitely constricted fields as reported by the staff of the department of ophthalmology. One was completely blind.

Neurological examinations were essentially negative in every case except in Patient No. 6 who presented hypoactive reflexes and bilateral unsustained ankle clonus.

Laboratory data were likewise essentially negative, except for Patient No. 6 who presented evidence of a mild acidosis, probably due to a prolonged self-imposed fast. An average of six laboratory examinations, including urinalysis, blood counts, serology, sedimentation rates, special blood chemistry studies, and x-rays, was done on each patient.

The duration of symptoms from the time of onset until admission to hospital varied from four hours to thirty-six months. The majority of the patients were ill from one to five months prior to the time of their referral. It is disconcerting to note that the average duration of symptoms was eight months. This fact in itself clearly indicates that the importance of psychogenic disturbances in childhood is not yet fully appreciated by many physicians. This is highly significant as therapy becomes increasingly difficult when the underlying etiological factors are allowed to go unrecognized for so long a time.

#### REFERRING DIAGNOSIS

The diagnoses suggested by the referring physicians are outlined in table 2.

#### TABLE 2

Patient 1—Defective vision.
Patient 2—7Kidney stone, ?? tetanus, ????hysteria.
Patient 3—7Rheumatic fever, ?partial bowel obstruction.
Patient 4—?Cerebral pathology. Patient Patient Patient 5—Petit mal and unconsciousness.
6—Dementia praecox.
7—Hysteria
8—Blindness and petit mal. Patient Patient 9-Muluple neuntis. Patient 10—Hysteria.
Patient 11—Hypotension, epilepsy.
Patient 12—Neurius, heart trouble. Patient 13-Hysteria Patient 14-Neurosis Patient 15-Hysteria Patient 16-Retrobulbar neuritis.

Analysis of the referring diagnoses revealed that hysteria was recognized in but 4 of the 16 patients. As noted, it was offered as the last of three diagnostic possibilities in the case of Patient 2. The referring physician's diagnosis of hysteria was substantiated in these 5 patients. In 5 additional cases the diagnosis was made upon admission to hospital. Of the remaining 6, hysteria was diagnosed only after several days of critical observation. The diagnosis of conversion hysteria in children is not always easy to make with certainty.

#### PREVIOUS MANAGEMENT

Therapeutic measures previously employed in some of the patients are briefly summarized to emphasize their ineffectiveness:

Incitectiveness:

Patient 3—Two previous hospitalizations. During the first of these an appendectomy was performed, and during the second a vermiluges, salicylates, and sulfaniamodes were given without benefit.

Patient 6—Eight electric shock treatments administered during two weeks' hospitalization produced only temporary improvement. Patient 7—Chloroform given to control convulsave like setting also chloral hydrate and morphine. Three diagnostic pneumoencephalograms revealed no abnormalities.

Patient 9—Treated by several physicians. Arrived at hospital

Painent 9—Treated by several properties of the several months. Treated by four physicians, an ostopath, and chiropractor. One physician by four physicians, an ostopath, and chiropractor. One physician control of the physician properties of the physician properties of the physician properties of the physician properties of the physician properties. Water restriction and anti-convulsant therapy ineffective. Patient 12—Appendectomy seven months prior to onset of symptoms. Later hospitalized for two weeks with no lating improvement.

Patient 13-Optometrist changed glasses frequently for period

Patient 13—Optometrist thanks a name of four months.

Patient 14—Varied complaints for one year prior to onset of a transitory hemiparesis. One week later an appendectomy was per-

Formed.
Patient 15—Cast and splints tried unsuccessfully by local physican. Hopitalized in an orthopedic hospital for months with only slight improvement.

Attention is called to the four patients who had an appendectomy. Careful review of their histories suggests the possibility that the abdominal complaints may have been largely hysterical in nature. If this impression is correct, four unnecessary operations were performed. One of our patients suspected of cerebral pathology had had three pneumo-encephalograms and was waiting for a fourth at the time the diagnosis of hysteria was made. Management of hysterical patients as noted above is to be deprecated. It is disappointing to the physician and to the family. Grave injustice is done to the patient. Improper management serves only to fix more firmly the emotional disturbances and mental conflicts which are basic in this disorder. Furthermore, secondary gains derived from the illness create additional problems in treatment.

The presenting complaints were sudden in onset in nine of the patients. For emphasis, the precipitating factors have been summarized as follows:

Patient 2-Patient and family feared that father who had threat-ened and tried to kill family would receive pardon from a correc-

ened and tried to kill family would receive parton from a correctional institution.

Patient 3—Feared favorite uncle might be drafted.

Patient 4—Father's deathy angry while chasing a boy.

Patient 5—Became extremely angry while chasing a boy.

Patient 6—Found a neighbor dead.

Patient 7—Family broken up by court order.

Patient 8—Drunkard struck at her eye without actual contact.

Patient 9—Driskled temporary foster home and wished to return to her own.

to ner own,
Patient 16—Sudden blindness during an attack of the measles
In the other 7 cases, the onset was more vague and insidious
Two patients were adopted children and unhappy; one was unhappy in a foster home. Another was jealous of a half-brother,
fearing that he was the mother's favouries

Stable home conditions are essential to the child's sense of security. An analysis of the circumstances of the homes represented in this series revealed the following findings which seem significant.

Economic circumstances were poor to marginal in all but two of them. Ill health of one or both parents was found in nine families. In four homes the father was alcoholic. To complicate the picture, parental tension was found in eight of the families. Marked sibling rivalry existed in four of them. Removal or the threat of removal of a favorite member of the family through the demands of war was significant in three cases. Divorce, step-parents, and adoption figured in several. In every case two or more of the above were found.

Since the symptoms of conversion hysteria are protean and may mimic practically any organic illness, the diagnosis is never conclusive until the possibility of organic disease is excluded and evidence of psychopathology substantiated.

As a detailed consideration of the differential diagnosis is impossible in this brief discussion, only a few of the more common childhood illnesses are mentioned.

- 1. Conversion hysteria is frequently mistaken for rheumatism, rheumatic fever, or chorea. The complaint of body aches and pains associated with nervousness and a slight temperature is often encountered in the hysterical child. An error in diagnosis means confinement to bed for a prolonged period of time—to the detriment of the patient. Such management serves only to fix more firmly the neurotic reaction and to make treatment more difficult when the diagnosis is established. One of the patients in this series had been confined to bed for several months only to recover spontaneously when treated psychotherapeutically. An hour's interview with the parents suggested the diagnosis could have been made at the onset of the illness.
- Convulsive-like attacks in children can be and often are hysterical. Electro-encephalographic studies and the water pitressin test can be of real value in differential diagnosis.
- 3. Periodic acute attacks of abdominal pains and vomiting with minimal or no confirmatory physical findings and with rapid recovery should be viewed with caution.
- 4. The possibility of a brain tumor or other cerebral pathology cannot be ignored. Several of the patients in this series required careful neurological study to exclude central nervous system pathology. Grave injustice has

been done many children erroneously classified as hysterical when in reality they were organically ill.

The question naturally arises: how can one make the diagnosis if it is so difficult? In our experience the following procedures have been found helpful:

1. In no other condition is a complete history more essential. Thoroughness and attention to detail are re-

quired. Several items are of special importance:

- a) The nature of the onset requires definition. While hysteria may develop slowly and insidiously, fully 50 per cent of the patients develop this condition following sudden severe emotional experiences. In the present series, loss of a favorite member of the family through death or induction into the armed forces, severe illness in the family, parental conflict or threatened disruption of the family were most common. It should be emphasized that while such traumatic experiences will precipitate an attack of conversion hysteria, they are not essentially the causative factor. Minor worries, conflicts, and other emotional tensions are significant in both sudden and insidious onset.
- b) Investigation of the emotional atmosphere of the home is important. Parental disharmony often bears a direct relationship to the child's illness. How do the parents get along? Is the child, as well as other siblings given fair consideration in the family pattern? Are the parents (particularly the mother) too fussy, exacting, or too austere in the demands made on the child? Is the child compelled to take sides in parental disharmony?
- c) The child's personality requires careful evaluation from the point of view of the history as well as direct observation. It is not uncommon to note that a child previously nervous, fidgety, fearful and anxious has suddenly become quite the opposite. As with older hysterical patients, the child assumes an attitude of utter indifference to his affliction, or at times, when carefully observed, a peculiar satisfaction in his symptoms and the attention given him. Contrary to current opinion, the child most prone to develop hysteria is the extremely sensitive, shy, modest, reserved, or serious youngster who is unable to handle everyday relationships in a healthy out-going manner.
- 2. The absence of conclusive physical findings should be carefully evaluated. Minimal findings may cause the attending physician to procrastinate "just in order to be sure." The attitude of the child during the examination is helpful as he frequently presents the "belle indifference" commonly encountered in conversion hysteria.

3. Direct observation of the patients during sleep is helpful. Patients suffering from paralyses, hyperesthesias, aches and pains in muscles and joints are able to move about freely while asleep. Likewise, spasticity disappears. These promptly reappear upon awakening.

Such observations are extremely helpful in making a satisfactory diagnosis which then becomes essentially an evaluation of the total situation rather than of the presenting symptom.

#### **Р**<sub>5</sub>YCHOPATHOLOGY</sub>

Many theories have been advanced to explain the nature of hysteria. The one point on which all authorities agree is that it is psychogenic in origin. Charcot empha-

sized the constitutional factors, believing it to be an inherited, degenerative condition. He also pointed out the important part played by imitation. The significance of suggestion was emphasized by Babinski and Bernheim. Dejerine called attention to strong and acute emotional upheavals prone to accompany the hysterical reaction. He and Janet recognized the process of disassociation and the symbolic nature of the symptoms. Janet also pointed out the immediate advantages derived by the patient from illness. Freud and the adherents of the analytical school still maintain that the basis of hysteria is related to forgotten or repressed conflicts emanating from sexual trauma. Freud stressed the role of substitution which is often important in hysteria. White 6 regards substitution as being "the cause of the most obvious symptoms in hysteria." He further states, "It is substitution but the substitute is a part of the individual's own body. This form of substitution is technically known as conversion and means that the mental difficulty has been converted by this mechanism into a physical difficulty." While none of these theories has explained the total process of the hysterical mechanisms, all have helped to clarify it.

Hysteria is essentially more than a symptom or constellation of symptoms. It is a specific reaction to difficulties accruing from the everyday adjustments required of the individual as he attempts to find satisfactions in daily living. The appearance of the hysterical symptom or symptoms is solely dependent upon the individual's emotional reactions to his own life situation. In this sense, hysteria is one pattern which the individual may adopt to solve his mental conflicts which may or may not be conscious. The reaction may occur more readily in those individuals so predisposed—it may involve imitation, suggestion, repression, or any of the other various mental mechanisms offered in the theories suggested above. Whatever the specific mechanism, when the conflict is resolved the individual is relieved and content. Thus his illness has meaning for him and assumes symbolic significance.

Strecker <sup>7</sup> has suggested that 1) the basis of the hysterical reaction is in unresolved emotional conflicts which have been converted into clear-cut somatic symptoms, easily discoverable upon objective examination; 2) the hysterical symptoms are always protective in nature; 3) they represent an escape from a situation which is intolerable to the individual; and 4) various factors such as predisposition, fatigue, and emotional trauma may act in a precipitating role.

Acceptance, security, and particularly love are the fundamental needs of children and are satisfied as the child aligns (or identifies) himself with an older person or persons (usually parents) who represent to him strength, stability, and security. It is out of these that he builds for himself a sense of adequacy, security, and self-reliance. When these fundamental needs are not gratified, conflict arises which may resolve itself by the child's "falling ill." Schilder has said "the hysterical person is one who needs love." We think this is particularly true of children.

#### PROGNOSIS AND COURSE

All of the patients in this series recovered from their original symptoms. Twelve have made a good adjustment while the remaining four have continued to have personality difficulties following recovery from the conversion symptoms.

In general, the more dramatic the onset, the easier it is to define the precipitating situation, and the less difficult it is for the understanding physician to proceed with con-

fidence and assurance.

The hysterical reaction which is slow and insidious in its onset is harder to deal with because the basic disturbance is often buried deep within the psychic structures of the personality and is better organized. Likewise, the child is more reluctant to relinquish the secondary gains which he has derived from his illness. One of our patients-a boy aged nine-ill for four months and confined in three hospitals prior to admission here, required a prolonged period of treatment before he suddenly and dramatically recovered. Another patient-a 13-year-old girl who had been treated in her own home for four months - proved more difficult in management than would have been expected had she been adequately handled early in her illness.

Occasionally patients with attendant disturbances in affect or mood are encountered. If the patient exhibits depressive or anxiety features during the process of treat-

ment, the prognosis must be more guarded.

Though the hysterical symptoms clear spontaneously under proper guidance and therapy, the outlook for the patient's future mental health is not always promising. The prognosis in a patient who has suffered severe and persistent symptoms is less favorable. Often such patients are unable to enter easily or wholeheartedly into a psychotherapeutic relationship, offering many subtle resistances to one's best efforts. When this occurs, the ultimate outlook becomes even more uncertain. A bad family history needs full consideration in evaluating the ultimate course of the patient's mental health as does any tendency to be seclusive, asocial, or overconscientious. Repeated hysterical reactions are also discouraging signs.

In general, however, the child suffering from an attack of acute conversion hysteria who responds easily and favorably offers a good immediate recovery and subsequent satisfactory development. It is not necessarily true

that "once hysterical, always hysterical."

The only rational treatment of conversion hysteria is psychotherapy. Its success depends upon a number of factors. 1) First and foremost is the orientation of the physician. He must not only accept the psychological nature of the disorder, but must have an understanding of the fundamental etiological determinants and mechanisms. Lacking this he may attempt to treat the presenting symptoms and only reinforce the patient in his

The aim of therapy is the removal of symptoms. However, it is more important to assist the patient to understand the nature and meaning of his symptoms than to attack the sympoms directly. One psychologically oriented will not make the mistake of using prizes, deception, or such cruel methods of treatment as punishing or ignoring a patient suffering from hysteria. Nor should the child be accused of malingering.

2. Unnecessary electrical treatment, massage, and physiotherapy should be discouraged, except when a real need exists. However, actual physical needs such as mal-

nutrition should not be neglected.

3. The child should be removed from his home and placed either in a hospital or in a suitable boarding home. This reduces the opportunities for unwholesome attitudes and feeling states to become fixed. The friendly but objective attitude of understanding foster home parents or house staff and nurses makes more possible the wholesome handling of the child. Some may object to removal of the child from the home. However, our experience suggests that temporary removal is to be preferred.

4. Direct psychotherapy with the child is essential. If he is under ten years, play therapy may be helpful. In older children principles of psychotherapy ordinarily employed with adults are often fruitful. Repeated friendly discussions with the child of his feelings about himself and others, of his dreams, and of his own reactions to everyday experiences, will frequently provide sufficient release from emotional tension to permit the gradual dissipation of the symptoms. Out of these friendly talks he develops insight and understanding, and the presenting symptoms disappear. Recovery may be gradual or it may be sudden and dramatic.

5. Treatment of the family, particularly the mother, should 3. I reatment of the family, particularly the mother, should proceed along similar lines. As soon as the diagnoss is made, the physican should give strong reassurance that recovery will take place. He should be candid, pointing out that the underlying difficulty is an emotional disturbance and that the principal aim of treatment will be to get at its source. This explanation helps the parents provide information needed for further underlying disturbance.

standing of the problem.

If it is decided, after thorough investigations have been made, that there is little or no hope of modifying the aggravating home circumstances, the child should be permanently removed

from the home.

In dealing with conversion hysteria, it is well to remember that an individual, rather than an organ, is being treated; that the symptoms are essentially protective in nature; that they are purposeful; and that once understanding is developed, the pa-tient recovers. In general, treatment should be broad and allinclusive, directed toward the development of insight in the patient and those having an active part in influencing him.

#### SUMMARY

1. Attention has been called to the fact that conversion hysteria continues to exist as a medical problem in children

2. Findings on sixteen patients varying in age from nine to fifteen years treated at the University Hospitals have been presented.

3. Psychopathology, course and prognosis, diagnosis and principles of treatment have been briefly discussed.

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## Dental Arch Development as a Guide to Time for Malocclusion Correction\*

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HIS study of growth and development of the dental arches of children was begun at the Institute of Child Welfare, University of Minnesota, in 1926, and has been carried on without interruption under the guidance of Dr. John E. Anderson and Dr. Richard E. Scammon. The Institute of Child Welfare has maintained an experimental nursery school and kindergarten with an enrollment of approximately fifty children ranging in age from two to six years and from all walks of life. They are evenly divided as to sex and are fairly representative of the population. After completing the course at the Institute, these youngsters returned periodically for this study.

One of the purposes of the study was to help determine, if possible, what changes take place in the dental arches incident to growth and development, and this presentation will discuss how this information may be applied in determining the most advantageous time to

start treatment of malocclusion.

Annual impressions were taken of the mouths of 156 children, and a longitudinal study was made of 28 selected cases, covering an age period of 3½ to 13½ years. For many of these children records were obtained over a longer period of time, but it was thought that this age limit would adequately cover the period of growth during which the teeth were erupting and show the development of the arches during the transitory period from the deciduous to the permanent teeth.

The method of growth of the dental arches and the period in which it occurs has intrigued the curiosity of many investigators, and has given rise to much speculation as to factors influencing its growth and development. As a result the problem has been attacked from many angles of research. Brash, Thoma, Scott, Todd, Hellman, Bogue, Bonwell, Howley, Gilpatrick, Hyde, Goldstein, and Lewis are some of the investigators who have spent a great deal of time developing knowledge of this study.

After careful consideration of various landmarks adopted by other research workers, it was felt that the measurements taken from definite cusps were very reliable; consequently, that was the point of measurement used in this study. On Fig. 1 the various points from which the measurements were taken are shown in white ink.

Fig. 2 shows the mean growth and development of the upper arches. The heavy line represents the mean measurement of the boys, and the broken line, that of the girls. Observe, that the arch is somewhat wider between the permanent six year molars of the girls than that of the boys of the same age. Very little lateral growth ever develops in this portion of the arch. The growth curve of the boys and the girls in the cuspid-to-

\*Read before the Northwest Pediatric Society, September 29, 1944.

cuspid area and in the area between the deciduous molars on both sides of the mouth appears to follow about the same pattern with a consistently larger arch development for the boys as compared with that of the girls. There appears to be some little growth between the first deciduous molars on either side of the arch. There is quite a definite growth in the cuspid-to-cuspid area of the upper arch. The period occurs in both boys and girls at from 6 to 8 years of age, which corresponds approximately with the time of eruption of the upper incisors. These findings agree in general with those of Lewis, except that his findings showed complete cessation of growth between 9 and 101/2 years, while our findings showed continued growth up to the twelfth year. Between the mesial surfaces of the cuspids to the distal surfaces of the second deciduous molars there appears to be no growth and, in fact, the space is shorter at 131/2 years than it was at  $3\frac{1}{2}$  years.

Figure 3 shows that mean growth curve of the lower arches. Here again there seems to be a consistency in the pattern of growth curve. The boys' arches are definitely wider in the cuspid-to-cuspid area, while the arches of the girls are very definitely wider in the area between the permanent molars. Very little later growth occurs in the molar areas, but a constant and definite growth period appears in the cuspid-to-cuspid region between the ages of 51/2 and 8 years. Observe, that the difference between the mesial surfaces of the cuspids and the distal surfaces of the second deciduous molars constantly becomes smaller, and have diminished approximately 2 millimeters by the time the permanent bicuspids have taken their positions in the arches. It may be of interest at this point, to emphasize the different types of patterns of arches that boys and girls develop. The girls' arches are narrower in the cuspid-to-cuspid region than are the boys', but the girls' arches are wider in the posterior and first permanent molar regions. Thus, the boys' arches are more rounded, the girls' more v-shaped. These mean growth curves may frequently be helpful in determining what the normal arch should be, and in many instances they are of considerable practical value. However, there, are frequent occasions in which arches develop normally along different patterns, and it would be foolhardy to attempt to accept these cases as the mean pattern of growth as developed for any particular group of children. In other words, these mean curves show a tendency; they do not determine individual variations from the normal.

The following general conclusions may be drawn from this study:

1. The greatest amount of growth in the dental arches occurs in the cuspid-to-cuspid area.

2. The greatest amount of growth in the cuspid-to-

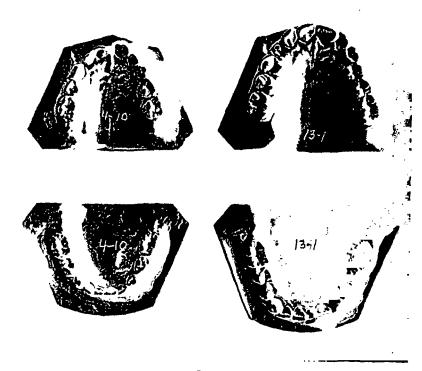


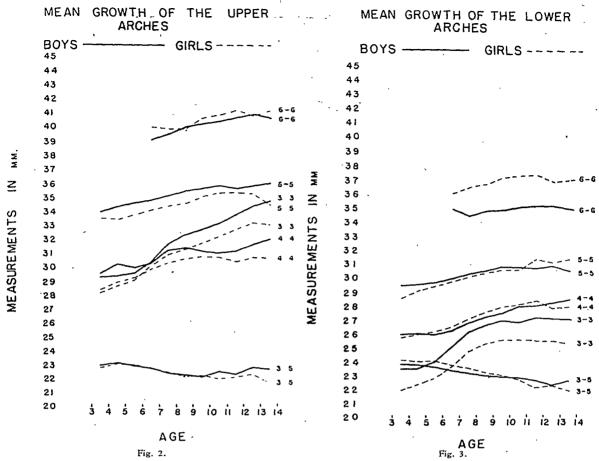
Fig 1

cuspid area occurs during the eruption period of the permanent incisor teeth.

- 3. The distance between the lower cuspids reaches its maximum width at approximately 8 years of age.
- 4. The distance from the mesial surfaces of the upper cuspids to the distal surfaces of the second premolars on the same side becomes somewhat shorter in the upper arch. In the lower arch there is a definite decrease in this measurement of approximately 2 mm.
- 5. The dental arches of girls, and particularly the lower arches, are wider in the posterior, but narrower in the anterior section than those of the boys.

The two chief reasons for instituting orthodontic procedure are for the improvement in mastication and for the improvement in asthetic appearances. Frequently, slight irregularities do not detract from a child's appearance, and if the teeth occlude well, then certainly there is no need to spend time and effort necessary to place the teeth in a slightly better position. However, when either mastication, or the pleasant personality of the child is interfered with, as a result of malocclusion, then the condition should be corrected if possible. In general, children seem to have very little objection to wearing orthodontic appliances. When treatment is found necessary, the earlier the malocclusion can be corrected consistent with good judgment, the more successful the correction will be. The following general rules may be helpful in determining when to advise orthodontic attention:

- Proper mastication is essential for children, and when this is difficult or impossible because the upper and lower teeth do not meet as they should, correction should be instituted at the very earliest date, possibly at three or four years of age. This would apply in the case of either an extreme overbite, where the upper teeth protrud excessively, or in the case of a prognathious jaw, where the lower teeth are more forward than the upper ones.
- When the anterior teeth are in a crowded position, while the remaining teeth appear in good alignment, ex-



pansion of the anterior segment of the arch may be advantageously accomplished during the growing period of that portion of the arch, which usually is between the seventh and eighth year.

3. Correction of other malformations should be started by the tenth year if possible, because it has been the experience of many practitioners that, as a general rule, children often refuse to wear the necessary orthodontic appliances during their period of adolescence. Girls particularly object to wearing them during this period. Consequently the orthodontic problem can be lessened considerably if all appliances are on and off at the very earliest date or at least before the children advance very far into the adolescence period.

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The United States public health service in cooperation with the National Foundation for Infantile Paralysis is offering fellowships for graduate work in health education. For the fall of 1945 these fellowships are open to men and women between 22 and 40 who hold a bachelor degree from a recognized college and will lead to a master's degree in public health. The training will require twelve months, nine of which will be spent at a school of public health, three in field experience. The fellowship provides a stipend of \$100 a month, full tuition and travel for field experience. Application forms may be had from the surgeon general, United States public health service, Washington 14, D. C., and must be received no later than June 1, 1945.

## Congenital Atresia and Congenital Tracheoesophageal Fistula\*

N. Logan Leven, M.D. Bernard G. Lannin, M.D. St. Paul, Minnesota

THOMAS GIBSON in 1696 observed a case of congenital atresia of the esophagus with a tracheoesophageal fistula, noting the typical feeding difficulties and accurately describing the postmottem findings. Mackenzie, Griffith and Lavenson, Cautley, Plass, Phelps and Rosenthal have carefully reviewed the literature and collected all recorded cases of congenital anomalies of the esophagus. In 1931 Rosenthal collected 255 cases of congenital atresia of the esophagus. In 1933 O'Hare reported 281 cases and in 1941 Ashley collected 314 cases. Ladd in 1944 added 72 cases, bringing the total to nearly 400 cases.

In the literature are various classifications of congenital anomalies of the esophagus. Six such anomalies have been described.

- 1. Simple atresia of the esophagus.
- 2. Obstruction of esophagus due to a membrane.
- Upper segment of esophagus ends in a fistulous tract entering the trachea just above its bifurcation and the lower segment begins again as a blind pouch.
- Tracheo-esophageal fistula with no attesia of the esophagus.
- 5. Both upper and lower segments of esophagus end in fistulous tracts entering the trachea.
- Congenital atresia of the esophagus with tracheoesophageal fistula; the usual anomaly found in the esophagus.

In this most common type of attesia of the esophagus the upper segment terminates blindly just above the bifurcation of the trachea, while the lower segment has a fistulous communication with the trachea usually about 0.5 to 1.0 cm. above the bifurcation or more rarely with the bronchus. The upper culdesac is usually hypertrophied and dilated and has an average length of 3 to 4 cm. The lower segment of the esophagus at the cardiac end is usually of normal size but often diminishes in caliber toward its tracheal opening.

The symptomatology associated with this anomaly is so characteristic that it should be readily recognized. At birth the child appears to be well nourished and usually well developed but has difficulty with large amounts of frothy mucus filling the mouth and pharyna, and drooling from the side of the mouth. When fed, the child eagerly takes the breast and after a few swallows stops, ceases to breathe, becomes cyanotic, and regurgitates frothy mucus and feeding through the nose and mouth. The child appears as if it would drown, but after a period of lifeless relaxation usually recovers and repeats this episode with each subsequent feeding. These infants "From the Department of Surgery, University of Munnesota Medical Schole."

tapidly lose weight due to starvation and dehydration and often develop an aspiration penumonia. The diagnosis of atresia of the esophagus is readily made on the typical history, obstruction to the passage of a catheter at 10 to 12 cm. from the alveolar margins, and roent-genologic visualization of the blind pouch with instillation of lipiodol or by esophagoscopic examination. The presence of air in the stomach in cases of atresia of the esophagus indicates a fistulous communication with the lungs, whereas, the absence of air in the stomach would indicate a simple atresia of the esophagus without a tracheo-esophageal fistula.

A series of 21 cases of congenital atresia and congenital tracheo-esophageal fistula has been collected from the records of the University Hospitals and the department of pathology of the University of Minnesota for the 22 year period 1916 to 1938 inclusive. Twenty additional cases have been seen at the University Hospitals from 1939 to 1944 inclusive.

Three types of anomalies of the esophagus were found in this series:

- 1. Simple atresia of the esophagus (3 cases),
- 2. Tracheo-esophageal fistula with no esophageal atresia (2 cases),
- The common type of atresia of the esophagus with associated tracheo-esophageal communication (36 cases.

The problems of treatment presented by each of these groups differ and will be discussed separately.

#### 1. SIMPLE ATRESIA OF THE ESOPHAGUS

The obstruction in these cases may vary from a membranous diaphragm across the lumen of the esophagus to a partial or nearly total absence of the esophagus. In the former case, merely rupturing the membrane with the tip of an esophagoscope has been sufficient to effect a cure. In the latter case the problem is two-fold: 1) feeding; 2) care of the blind pouch of the upper esophageal segment. Gastrostomy should be sufficient for the purpose of feeding and should be done as soon as possible. The distance between the blind ends of the upper and lower segments of the esophagus is often too great to consider anastomosis of these segments. Exteriorization of the upper blind pouch of the esophagus, to form a cervical esophagostomy, should be done as a second stage procedure. An antethoracic esophagoplasty will later be necessary to establish continuity of the gastro-intestinal tract.

In the three cases of simple atresia of the esophagus in this series the upper segment of esophagus ended as a blind pouch at the level of the second thoracic vertebra and the blind end of the lower segment extended 2 cm. upwards from the cardia of the stomach. There was no connection between the two segments.

One case is alive and well at 11 months of age. A gastrostomy was made at three days of age and the upper segment of the esophagus was exteriorized as a cervical esophagostomy at twenty-five days of age.

Simple atresia of the esophagus is very rare but should be the most satisfactory to treat since there is no associated tracheo-esophageal fistula.

### 2. Tracheo-esophageal Fistula with No Esophageal Atresia

This rare type of tracheo-esophageal fistula presents the usual symptom associated with any fistula between the esophagus and trachea, namely, coughing and choking after swallowing liquids. Since the fistulous tract may be small and the symptoms inconstant, the diagnosis may be difficult to make before autopsy.

If the diagnosis of tracheo-esophageal fistula can be established, feeding by gavage may suffice to minimize the danger of aspiration into the air passages. Surgical correction of such a fistula could then be accomplished by exposure and ligation of the fistulous communication through a posterior extrapleural approach.

### 3. Congenital Atresia of the Esophagus with Tracheo-esophageal Fistula

This type of atresia of the esophagus is the most common, occurring in 80 to 90 per cent of cases. The problem in these cases is three-fold: 1) feeding, 2) management of the fistulous communication of the lower segment of the esophagus with the trachea, and 3) care of the blind pouch of the upper esophageal segment. The various operations which have been suggested and attempted will be discussed briefly.

Gastrostomy has been the most frequent procedure used in these cases for the purpose of feeding. This alone has been insufficient because it does not answer the most important problem of regurgitation of stomach contents through the fistula into the trachea. To lessen this danger, passage of the gastrostomy catheter beyond the pylorus and well down into the jejunum has been suggested. In one case in this series in which this was the only treatment used, the patient survived 54 days. Jejunostomy has, likewise, been ineffectual in these cases.

Ligation of the esophagus at the cardia plus gastrostomy leaves a blind pouch of esophagus in which secretions will collect and empty into the trachea.

Transection of the upper end of the stomach, abdominal esophagostomy and distal gastrostomy have been unsuccessful. Exteriorization of the cardiac end of the esophagus and stomach plus gastrostomy has resulted in ulceration of the exteriorized segment. In both of these procedures considerable difficulty presents in the management of the wound due to drainage of secretions from the gastric end of the esophageal stump.

Several methods of direct attack on the fistula have been attempted.

Endotracheal stenosis of the fistula by chemicals has been suggested. In one case of this series which is alive and well, the fistulous communication of the esophagus to the trachea was identified through a bronchoscope and was coagulated by an electrode passed into the fistula. This did not result in an effective stenosis.

Lanman and associates ligated and divided the fistulous communication to the trachea through a right sided extrapleural approach, bringing out the distal esophagus as a dorsal esophagostomy and placing a catheter in this for feeding. In some cases proximal esophagostomy was added primarily or secondarily to prevent the overflow of secretions from the blind proximal end of the esophagus. This group of cases demonstrated that dorsal esophagostomy is not a desirable procedure since the blood supply of the mobilized distal segment of esophagus is definitely impaired. Simple ligation of the fistula at the trachea and gastrostomy should prove to be safer.

Early exteriorization of the blind pouch of the upper esophageal segment to prevent aspiration of secretions is of primary importance to prevent aspiration of saliva from the blind pouch of the upper segment.

The major disadvantage of ligation of the fistula at the trachea and cervical esophagostomy is the necessity of some form of permanent exterior esophagus.

The operation of direct anastomosis of upper blind pouch to lower segment of esophagus after division and ligation of the fistula to the trachea would be the ideal solution to the threefold problem presented by these cases. It closes the tracheo-esophageal fistula, takes care of salivary secretions, provides for feeding and restores the esophagus more nearly to normal than any other plan of operation.

The discrepancy in size of the two esophageal segments and the distance between the segments make this operation often difficult if not impossible.

Since 1939 Ladd and his associates have operated on 34 patients. Of these patients 6 have had primary anastomosis of the esophagus and 2 are living. Twenty-eight patients had the three-stage operation of obliteration of the esophageal fistula, gastrostomy and cervical esophagostomy; 9 of these are living.

Since 1939 Haight has operated on 24 of 28 patients seen at the University Hospital at Ann Arbor. A primary anastomosis of the esophageal segments was done in 16 of the 24 cases. Six of these patients were living, the oldest being the first successful case of primary end-to-end anastomosis recorded in this type of anomaly.

Humphrey has 3 patients living after the multiple stage operation and one patient alive after primary anastomosis of the esophageal segments.

Daniel of Vanderbilt also has one living patient after anastomosis of the esophagus.

Our cases of anomalies of the esophagus are divided into two groups. In the first group are 21 cases collected from the records of the University hospitals and the department of pathology of the University of Minnesota from 1916 to 1938 inclusive. In the second group are 20 cases which have been seen at the University hospitals from 1939 to 1944 inclusive.

Operation ....

#### GROUP I CASES

#### TABLE 1

type of anomaly:	CTICE
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Total cases	21
TABLE 2 Cases of atresia of esophagus with tracheo-esophageal fistula	
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Cases of afresia of esophagus with tracheo-esophageat hitula:	
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No operation a 0.0	12ys
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#### TABLE 3

Types of operations:	Number	Average Survival Period 6 days	
Extenorization or division of cardiac end of stomach		44 daya aximum 98 daya)	

Study of these cases demonstrates: 1) that simple gastrostomy is of no value alone; 2) a type of treatment which takes care of the tracheo-esophageal fistula has been shown to prolong the life of these cases; 3) the method used to take care of the traceho-esophageal fistula in 5 cases was unsatisfactory.

In 1939, a more direct attack on the fistula was planned, and carried out successfully. This patient was the first with congenital atresia and tracheo-esophageal fistula

It is of extreme interest that Ladd came to the same conclusions about methods of attacking this problem and adopted principles identical with ours. While our case is the oldest living patient, his oldest living patient is but a day younger than ours. It was two years after our operation that we learned of Ladd's case.

The procedure used in the first successful case will be briefly outlined. After a preliminary gastrostomy, an extrapleural ligation of the communication of the lower segment to the trachea is carried out. The proximal blind pouch of esophagus is exteriorized to make a cervical esophagostomy. This plan necessitates construction of an antethoracic esophagus to re-establish the continuity of the gastro-intestinal tract. Ladd has successfully carried this out in two cases.

#### GROUP 2 CASES

Year	1939	1940	1941	1942	1943	1944	Total
Number of patients	. 2	1	3	3	6	5	20
No. operations performed	1 1	12	3			l.	2
Ligation of fistula	. 1		-	3	6	3	10
End-to-end anastomosis . Living	. 1	la	36	3с	3 d 3 e	1 a 4 f	15

a) Cases of simple atresia without fistulia into trachea.
b) One case showed cerebral sclerosis and was a Mongol
c) One case lived 27 months. Death was due to perforation of
stomach wall by gastrostomy tube. One case had congenital
atresta of the deudentum also
continuity of fistulous tract and
first think was religiated.
c) In one case the exteriorized upper segment was not opened
immediately and death was due to aspiration. Death in another case was due to perforation of stomach by the gastrotomy tube which had been drawn back out of the diodenum
into the stomach.

f) The 3 cases of primary anastomosis of the esopharus lived 7, 37 and 88, days. The first case developed a generalized edema on the third postoperative day and died. The second case developed an external esophageal fistula. A gastrostomy was made but hypoproteinemia developed with edema and death occurred at 37 days. The third case had an imperforate anus with a rectovaginal fistula. Swallowing of lipiodal demonstrated no fistula but at autopsy re-establishment of the tracheo-esophageal fistula was demonstrated. In 2 cases in this second group no operation was performed. One patient died the day after admission and the other patient died three minutes after reaching the hospital. In both cases extensive bronchopneumonia was present.

bronchopneumonia was present

No. of

#### COMMENT

Bronchopneumonia has been the most common cause of death in these cases.

A second cause of death is edema due to overhydration. Parenteral fluids must be limited to less than the amount that could be taken by a normal baby. A definite danger of development of pulmonary edema exists if much saline is given. Such edema developed in two cases following plasma infusions.

The sequence of operations is important. Because of a successful result in early cases in this series where early ligation of the fistulous tract and exteriorization of the upper blind pouch were considered elective procedures, this plan was adopted. After losing several cases in which only gastrostomy had been done, we learned that early treatment of the fistula was urgent and occasionally early treatment of the upper blind pouch may be of primary importance. This pouch, when exteriorized, should be opened at once.

Re-establishment of the tracheo-esophageal fistula occurred in 2 cases, four weeks after the operation of extrapleural ligation of the fistulous tract, when ligatures eroded through into the lumen of the esophagus. In both cases the operation was again performed dividing the esophagus. This should be done at the initial op-

Primary anastomosis of the esophageal segments is the ideal operation, but cannot be done in all cases. The risk of this operation is greater than that of the multiple stage operation.

#### SUMMARY

A series of 41 cases of congenital atresia and congenital tracheo-esophageal fistula is reported.

The problems presented by these cases are reviewed and the various operations which have been attempted are discussed.

Five living cases are reported in this series.

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When you buy 7th War Loan Bonds for your boy's medical education, if you buy enough to pay for 3 years, Uncle Sam treats you and him to the fourth.

#### Convulsions in Infants and Children\*

Age and Etiologic Incidence

E. Perry Crump, M.D. Nashville, Tennessee

ONVULSIONS in infants and children may be related to and precipitated by a great variety of disease conditions. Yet the disease per se has not been shown to be the actual cause of the seizure. The same disease entity may be accompanied by attacks in one child, but not in another, although all other circumstances be identical in the two cases. The mechanism by which convulsions are produced in the apparently susceptible child is not known, nor is the nature of this peculiar susceptibility clearly understood.

This study does not represent an attempts to present a fundamental basis for convulsions, but rather to show the frequency with which seizures may be expected to occur at the various age levels as a part of the clinical picture of certain disease entities. The work entailed a review of 1,543 case records selected to include all of the clinical disorders in which convulsions are prone to occur. These varied from the common infectious diseases of infancy and childhood to rare disorders such as tuberous sclerosis and toxoplasmosis. The cases consisted of patients admitted to the pediatric service of the University of Minnesota Hospital during the last decade. A similar study of the age incidence of convulsions in children admitted to this hospital during the two previous decades has been reported by McQuarrie.<sup>1</sup>

#### GROUP CLASSIFICATION

Because of the volume of the material under consideration, it was necessary in some instances, for purposes of classification and statistical arrangement, to condense several disease entities under a single head. Thus, Acute Infections include: pneumonia, acute otitis media, whooping cough, acute pyelonephritis, measles, etc.; Cerebral Atrophy: cerebral aplasia and agenesis, cerebral spastic paralysis, hydrocephalus, etc.; Head Injury: skull fracture, brain concussion and contusion, birth injury and subdural hematoma; Brain Tumors: cysts, abscesses and tumors; Miscellaneous: Sturge-Weber syndrome, cerebral sinus thrombosis, hypoglycemia, Schilder's disease, tuberous sclerosis, toxoplasmosis, convulsions of unknown etiology, congenital syphilis, renal and miliary tuberculosis, hysteria and anxiety neurosis, etc. Other groups such as the meningitides, poisoning, encephalitides, are self-explanatory and require no comment.

Diagnostic procedures which had been used in the cases studied included a complete history and physical examination. Neurological examinations had been carried out in all cases having convulsions. Routine urine analyses and blood counts had been done in all cases, and in most instances serum calcium and phosphorus and fasting blood sugar had been determined as well. When indicated, other diagnostic procedures such as x-ray of the

\*From the Departments of Pediatrics, University of Minnesota Medical School, Minneapolis, Minnesota, and Meharry Medical College, Nashville, Tennessee skull and long bones, pneumoencephalograms, bacteriological examination of blood, spinal fluid, urine, stools and exudates, the pitressin test, and glucose tolerance tests had been carried out. Pathological diagnoses were secured on a large percentage of the fatal cases and also from biopsy studies.

#### GENERAL CASE SURVEY

Of the 1,543 cases reviewed, one-half (775) were acute extracranial infections (table 1). Of these only 54 developed convulsions. This represents an incidence of 7 in every 100 cases of acute infection, the lowest percentage in the entire series. In this study, 210 cases were epileptic, organic epilepsy predominating (54.8 per cent). Thus about one of every seven cases reviewed was epileptic, this condition alone accounting for almost one-half (44.9 per cent) of all convulsive cases. Approximately 10 per cent of head and birth injuries had seizures. Roughly 50 per cent of the cases of meningitis suffered from convulsive attacks.

TABLE 1
Incidence of Convulsions in Various Clinical Categories

				Seizures		
Group	Diagnosis	No. of Cases	No. of Cases	Pct. of Group	Pct. of Total	
1.	Epilepsy { Organic	115	115 95	54.8 45.2	24.6 20.3	
		210	210	100.0	44.9	
2.	Acute Infections (exclusive of meningitis)	775	54	7.0	11.6	
3.	Meningitis	93	51	54.8	10.9	
4.	Convulsions of unknown etiology	28	28	100.0	6.0	
5.	Brain tumors	53	22	41.5	4.7	
6.	Miscellaneous	63	18	28.6	3.8	
7.	Tetany	19	17	89.5	3.6	
8.	Encephalitis	41	16	39.0	3.4	
9.	Tetanus	18	16	88.9	3.4	
10.	Head and birth injuries	107	11	10.3	2.4	
11.	Glomerulonephritis	50	10	20.0	2.1	
12.	Cerebral atrophy	68	9	13.2	1.9.	
13.	Poisoning	18	6	33.3	1.3	
	Totals	1543	468		100.0%	

It is of interest to note that, whereas there were 775 cases of acute extracranial infections studied as against 93 cases of meningitis, the number of convulsive patients was practically the same in the two groups. The frequency of seizures in poisoning and glomerulonephritis is relatively high, the former having one convulsive patient in every three cases and the latter, one in every five.

Epilepsy, acute infections, meningitis and brain tumors combined account for almost three-fourths (72 per cent) of all convulsive cases.

#### Age and Sex

The age groups under consideration range from birth to sixteen years (table 2). The lowest age-incidence of convulsions occurred during the first six months of life

TABLE 2
Age Incidence of Seizures and Predominant Causative Factor

Convulsive Cases							
Group	Age on Admission	No. of Cases	Pet, of Total	Diseases Having Highest Incidence of Seizures			
1	Berth to I month	13	28	Meningitis, 53 8%			
11	I to 6 months	43	96	Acute Infections, 28.8%			
111	6 months to 3 years	135	28 8	Epilepsy, 37.8 %-(Organic, 28.9%; Idiopathic, 8 9%)			
VI,	3 years to 6 years	76	16.2	Epilepsy, 46.1% - (Organic, 18.4%; Idiopathic, 27 7%)			
v	6 years to 10 years	85	18 2	Epilepsy, 58.8%-(Organic, 7.1%; Idiopathic, 51 7%)			
٧I	10 years to 16 years	114	24.4	Epilepsy, 56.6%-(Organic, 4.4%; Idiopathic, 52,2%)			
	Totals	468	100 0%				

(12.4 per cent), the highest (28.8 per cent) during the period of six months to three years.

Forty-one per cent of all patients having seizures were under three years of age, 57 per cent were under six years, and 75 per cent were under ten years of age.

Taken as a whole the cases were almost evenly distributed between the two sexes, males being but slightly in excess (53.1 per cent). In isolated groups, however, males showed a definite predominance. For example, they constituted 94 per cent of 16 cases of tetanus, 74 per cent of 19 cases of head injury and more than 70 per cent of 17 cases of tetany. It is understandable that the greater degree of activity and exposure of males may be responsible for this predominance in tetanus and head injury.

#### AGE-ETIOLOGIC FREQUENCY OF CONVULSIONS

Of all cases studied, 468 (30.3 per cent) developed seizures (table 1). If meningitis is combined with acute infections, the acute febrile group will exceed all others in frequency during the very early period of life. For example, febrile diseases account for 61.5 per cent of all cases having seizures during the first month of life, 44.4 per cent from one to six months, 35.7 per cent in the six-month to three-year group, 18.4 per cent from three to six years, 8.2 per cent from six to ten years and only 7.1 per cent in the ten to sixteen-year group. This striking decline in frequency of febrile diseases as a cause of convulsions bears an inverse relationship to the degree of maturation of the patient, revealing as well, a greater incidence of acute infections in the younger age groups and a higher incidence of chronic convulsive disorders in the older age groups.

Wegman 2 suggests that the type of febrile illness, exclusive of intracranial infections, is not the significant factor in the febrile convulsions of the young, but that the rapid elevation in body temperature is the important element. He observed that kittens subjected to sudden rises in body temperature developed convulsions in a large percentage of cases, but found it difficult to duplicate this result when the temperature rise was gradual.

Epilepsy makes an initial appearance during the first six months of life, being essentially secondary to brain damage and accounting for 22.3 per cent of the seizures in this age group. The relative incidence grows rapidly with the increase in age, so that it holds first place from six months to sixteen years. Epilepsy is by far the commonest cause of convulsive attacks, for in the six- to sixteen-year age group, it alone accounts for over one-half

of all cases. It is of interest to note that duting the first six years of life organic epilepsy exceeds the idiopathic type, whereas the latter is twice as frequent as the former from six to sixteen years.

Tetany appeared third in frequency in the youngest age group; ascended to second place between six and eighteen months, and rapidly declined to disappear after six years. Idiopathic hypoparathyroid tetany occurred in but one patient, a fifteen-year-old male.

Spontaneous hypoglycemia caused seizures in four of seven cases. One case was apparently related to Addison's disease, while another was cured by surgical removal of two small adenomata from the pancreas. Low blood sugar readings were observed in all instances, the first of the above mentioned cases reached levels below 20 mg, per cent and the latter, 33 per cent.

Rector and Jennings 3 (1937), discussing the rarity of tumors of the pancreas with hyperinsulinism in children, mentioned that only one case in a child had been reported in the literature. Peterman 4 reviewed a large group of infants and children with convulsions, and felt it strange that none of his cases was found to be due to hypoglycemia or hyperinsulinism. Rector and Jennings, 4 however, reported eleven cases of spontaneous hypoglycemia of tecurrent type associated with convulsions.

Darrow a presented two cases of mental deficiency associated with convulsions and hypoglycemia, and concluded that because of roentgenological evidence of brain damage causing convulsions and a disturbance in the regulation of the blood sugar, the nervous symptoms (convulsions) should be related to the lesions in the brain rather than to the hypoglycemia. He cites these cases to demonstrate the difficulties involved in assigning a causative role to low blood sugar in the production of convulsive seizures. Of the four cases mentioned in the present study, only one showed evidence of probable brain damage (borderline hydrocephalus).

Because in many instances head and birth injuries as well as subsequent residua give rise to characteristic recurrent seizures, such cases are frequently classed under the head of organic epilepsy. In this series, birth injury was specifically assigned as the cause of convulsions only during the first month of life (23.1 per cent). Later (one to six months) it is included under cerebral atrophy or symptomatic epilepsy. Encephalitis appeared during the first six months (6.7 per cent), but reached a peak in the age group between three and six years (10.5 per cent) and disappeared by the tenth year, the chronic

seizure.

form with recurrent convulsions then being classified under organic epilepsy. Brain tumors increased from 3.7 per cent between the ages of six months and three years to 10.6 per cent during the ten- to sixteen-year period. These lesions caused seizures in almost one-half of all such cases studied. Of the eighteen cases of hysteria studied, 22 per cent had seizures. Three of the convulsive patients were females, and all four cases were between the ages of ten and sixteen years. There were also two cases of anxiety neurosis, one of which had convulsions. Tetanus caused convulsions in 88.9 per cent of 18 cases studied, the remaining two patients showing such signs as trismus and meningeal irritation, but no typical convulsive seizures. Of 50 cases of glomerulonephritis, 20 per cent had convulsions and most of these presented the clinical and laboratory findings of uremia. No cases of convulsions were found to be related to worms, teething, phimosis, or allergy.

Other miscellaneous entities include the following: Schilder's disease, of 8 cases studied 6 had seizures. Sturge-Weber syndrome, of 3 cases studied 3 had seizures. Tuberous sclerosis, of 1 case studied 1 had a seizure. Congenital syphilis, of 3 cases studied 2 had seizures. Cerebral sinus thrombosis, of 3 cases studied 1 had a seizure. Toxoplasmosis, of 1 case studied 1 had a

#### INCIDENCE OF DEATH

A fatal result occurred in 104 (22.2 per cent) of all cases having convulsions. However, terminal seizures were definite in only 14 cases. Death occurred in males and females with almost equal frequency. Meningitis alone accounted for 47 deaths (45.2 per cent). These deaths were distributed as follows: tuberculous, 10; influenzal, 10; pneumococcal, 12; all others, 15. Ten deaths occurred in tetanus (9.6 per cent). Only three of these were not complicated by pneumonia. Glomerulonephritis caused seven deaths, only one of these being complicated by pneumonia. The pneumonias accounted for six deaths (5.8 per cent). There were eight deaths due to brain tumor (7.7 per cent); five were due to birth and head injuries (4.8 per cent), and five were caused by poisoning (lye, 2; strychnine, 1; methyl salicylate, 1;

bromide, 1). Septicemia and otitis media caused three and two deaths respectively, while all other cases accounted for eleven instances.

Contributing heavily toward this mortality rate were several important factors. First, well over 80 per cent of these patients were in poor physical condition upon admission to the hospital, many being regarded as critical. Secondly, over one-half of the fatalities were primarily or secondarily precipitated by acute infections; and lastly, about two-thirds of all deaths occurred prior to the advent of sulfonamide and penicillin therapy.

#### SUMMARY

The hospital records of 1,543 infants and children treated at the University of Minnesota Hospital between the years 1933 and 1943 for the clinical disorders which are most frequently complicated by convulsive seizures were studied to determine the age incidence of different causative factors.

The largest group of cases studied (acute infections exclusive of meningitis) was found to have the lowest incidence of convulsions (7 per cent). Such febrile convulsions occurred almost exclusively in the younger age

Convulsions occurred in 55 per cent of patients with meningitis, in 89 per cent of those with tetanus, in 39 per cent of those with various types of encephalitis and in 90 per cent of those with tetany.

Epilepsy was found to be the most common cause of seizures, constituting almost 45 per cent of the total number of convulsive cases. Although relatively unimportant numerically during the first six months of life this chronic convulsive disorder was found to be increasingly prominent in the older age groups. The incidence of organic epilepsy was relatively greater in the earlier age groups. The idopathic type was seven to ten times as frequent as the organic type, however, in the older age

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### The Reading Disability: A Pediatric Problem\*

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READING disability may be highly significant in the physical complaints and emotional tensions frequently found in school children. While these complaints that are related to a reading difficulty may occur in any school child, they are most often found in children nine or ten years of age or older-boys and girls who are in the fourth, fifth, or sixth grades. From this point on, the ability to read assumes such an increasingly

\*From the Department of Pediatrics, University of Minnesota Medical School. Presented before the Northwestern Pediatric Society March 2, 1943.

important part in nearly every school subject that school success or failure depends upon it. A youngster unable to compete with his classmates because he cannot read finds himself at a real disadvantage, and repeated failure results in unhappiness for which he may try to compensate in various ways. He may develop into a "behavior problem," becoming sullen and negativistic toward his teacher and classmates. He may become "the bully," or may withdraw from contacts with the group. On the other hand, he may develop bizarre physical complaints

varying from mild headaches (usually most severe early in the morning) to marked digestive disturbances, fainting spells, or convulsive-like seizures. He may manifest both emotional and physical symptoms.

A case recently encountered in the Pediatric Outpatient Department of the University of Minnesota

Hospitals ullustrates the point.

Dorothy, aged ten, came to the hospital with complaints of frequent sore throats, continuous fatigue, and backwardness in school. In addition to these symptoms, she cried often, was moody, and, of late, did not care to play with her former friends. She was extremely sensitive and resented the jibes and teasing of her sisters who referred to her as "dumb". At the time of referral she was half-way through the fourth grade and her matks were poor—noticeably poorer than in the preceding grade.

Dorothy's mother indicated that in her judgment the girl was slow. She added, however, that her daughter had always

had trouble with reading.

Thorough physical studies were negative. Dorothy was referred for psychological testing which revealed, instead of a dull girl, one of high average intelligence. Her mental age at the time of study was thitteen months in advance of her chronological age. Although Dorothy's level of general intelligence was at the very upper reaches of the average range, tests of reading ability showed that she was reading at an early third grade level, a retardation of a year and one-half at a time when that degree of inadequacy is particularly critical.

The first step in the treatment of this unhappy youngster was to interpret the findings both to the child and to her mother. Since there were facilities in Dorothy's community where she could obtain the needed specialized help in reading, she was referred to the services available with a full report of the findings and recommendations. The latest account of Dorothy indicates that things are going well. Her physical complaints have been alleviated and she no longer cries and withdraws from social

ontacts

Many similar case histories could be cited to illustrate the stellar role which reading difficulties may play in the etiology of the physical and emotional symptoms of some children. Authorities conservatively estimate that between 10 and 20 per cent of the children in our elementary and secondary schools cannot read adequately because of a specific disability.

A frequent error, not only of parents and teachers alike, but of the unhappy non-reader as well, is to think of the child as dull and stupid. Measured intelligence, however, and rapid school progress after remedial treatment have proven otherwise. These children of average or superior intelligence manifest a specialized disability in reading; they appear in contrast to the children who are generally retarded in intellectual development and whose slowness in learning to read accompanies slow progress in other intellectual functions.

The causes of reading disability are numerous and the specialists in this field are engaged in extensive research and discussion about them. Medical doctors can surely understand a situation of etiological argument!

Briefly the causes of reading disabilities can be dis-

cussed under four headings.

1. Physical defects. In a small but significant number of cases of persistent trouble there are uncorrected conditions of the eye or ear. It is important for the physician to look for muscular imbalance, which may cause a lack of fusion of visual images. Although fitted properly with glasses, some children need additional corrective eyemuscle training. Islands of deafness, which are often unrecognized, may likewise penalize the child.

- 2. Poor or inadequate instruction. An impressive number of reading problems are related to the fact that children vary in their ways of learning. Despite this, many school systems ignore this fact and adopt a standard method for teaching reading. It is well known, however, that children do not use visual, auditory, and kinesthetic imagery equally well; they can acquire facility in reading only when attention is paid to these differences, especially in the initial stages of learning. Moreover, the habit of moving the eyes from left to right in following the printed word is often left to chance, and the lack of guidance in establishing this habit is basic to some children's difficulties. The extreme use of the whole word or phrase approach, too, or the exclusive use of any analytic method, contributes markedly to the development of poor reading habits. A disregard for individual differences in the application of any teaching program inevitably handicaps some children and invites failure. The literature dealing with remedial reading methods reports dramatic successes when the individual needs of the child are recognized.
- 3. Emotional problems. The teacher's attitudes, particularly when colored by sarcasm, by sharp estimation, by favoritism, or by indifference may present an unfavorable setting for good learning. Parental over-concern or disparaging comparisons with other siblings may adversely affect motivation. These facts should be considered in each case.
- 4. Cerebral dominance. The theories of causation due to left-handedness, to mixed eye-hand dominance, or to the failure to establish dominance in the cerebral hemispheres have been open to serious question and criticism. They form, perhaps, the strongest focus of controversy at the present time in this field.

While there are many causative factors in reading disabilities, most, if not all, of these difficulties can be relieved by appropriate guidance. The first step, however, is to recognize the problem. It is astonishing how many times this special disability is overlooked by the school. Therefore, the development of the emotional and physical tensions already mentioned will often bring the child to his physican, who, by his awareness of the ramifications of reading disabilities, can do much to help the shild.

There are several ways of uncovering the possible existence of a specialized delay in reading. The point of the search is the discovery of a discrepancy between general intelligence and achievement in areas not dependent upon reading on the one hand, and a special reading disability on the other A physician who understands the norms of behavior can obtain a rough estimate of general capacity by making a careful inquiry into the child's developmental history and present performance. An investigation of the school achievement from kindergarten to the present grade may also yield pertinent information. As indicated above, this is particularly true if the child has begun to have trouble in the fourth or fifth grade when reading begins to take a place of primary importance in school work. In case of doubt, a well-chosen buttery of tests given by a competent, well-trained person—either in the school system or in a children's clinic—can define the problem with greater accutacy. Such a definition makes possible a plan for remedial reading in conjunction with other recommendations felt necessary by the physician.

One word of caution is advisable. Poor, inadequate tutoring is worse than none at all. Likewise, any attempt by a member of a child's own family to tutor him should be discouraged Such procedures serve only to push the disabled reader deeper into his feeling of certain failure and inability to learn

A reading disability may play a prominent role in the etiology of physician alert to this fact can be of immeasurable assistance not only to the child under his care, but also to the child's family and the community.

## Jaundice in Infancy and Childhood\*

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HETHER the appearance of jaundice clarifies or confuses any particular clinical problem depends on many factors, including the physician's training and experience with certain diseases, his knowledge of bile metabolism, correct application and evaluation of pertinent diagnostic tests.

The characteristic staining of tissue due to excess circulating bile pigment may be recognized at various individual "threshold" levels; these are apt to be peculiarly higher in infants and children than in adults. In the newborn, for example, very close scrutiny may show no visible discoloration of the skin and sclerae when the serum bilirubin is several times greater than that accompanying obvious jaundice in an adult. Very mild degrees of jaundice may therefore be expected to have greater diagnostic significance in young subjects. Factors responsible for this apparent age difference in the affinity of tissues for adsorption of circulating bile pigments have not been elucidated.

#### I. METABOLISM OF BILE PIGMENT

Accumulation of bilirubin in the circulation depends on excessive production or faulty disposal. Originating from breakdown of hemoglobin throughout the reticulo-endothelial system, the *heme* fraction yields iron-containing hemosiderin and *bilirubin*. Free in the circulation, this bilirubin enters into loose physical combination with plasma protein: *hemobilirubin*. This adsorbed (nondiffusible) form of bilirubin is normally present in plasma in a concentration of 0.2 to 1.0 mg. per cent; it gives an indirect van den Bergh reaction and cannot pass the normal renal glomerulus.

When this combination of bilirubin and protein arrives at the liver, it is again broken down, now yielding a diffusible "direct" bilirubin, sometimes called cholebilirubin. Excreted into the bile ducts, this passes into the intestinal lumen, where bacterial action causes change to greenish biliverdin, finally stercobilin (fecal urobilinogen).

Watson has shown that the normal adult excretes 50 to 250 mg. of fecal urobilinogen daily.<sup>2</sup> Tat, Greenwalt, and Dameshek <sup>3</sup> studied the output of bile pigments in infants and children and found the excretion of urobilinogen to be very low. In normal infants, there appears to be a reciprocal relation in the output of bilirubin and urobilinogen in the feces; bilirubin normally disappears from the stool at about the seventh month of life. Under two years of age, most infants excrete less than 2.5 mg. of urobilinogen in the feces daily, and children up to eleven years only 2 to 7 mg. per day. Reasons for such striking differences in output of fecal urobilinogen by children and adults have not been clarified but include such factors as difference in diet, rate of digestion, hepatic function, and greater need for hemoglobin "building stones" in the young.

\*Condensation of a symposium on Jaundice presented as part of a postgraduate course in Pediatrics, Tulane University School of Medicine, New Orleans, Louisiana, December 11-15, 1944.

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Some of the soluble urobilinogen in the intestinal tract is picked up by the portal circulation and returned to the liver, where it may be stored, re-excreted, or destroyed. A small amount reaches the general circulation via the hepatic veins; being diffusible, it appears normally in the urine as urinary urobilinogen (1 to 2 mg./day). Children also excrete relatively less than adults by this route. Damage or disease of liver cells allows increased amounts of urobilinogen to gain access to the circulation and appear in the urine.‡

Since maintenance of a normal level of serum bilirubin is dependent on accurate integration of many processes, it is not surprising to find jaundice as a rather common manifestation in a number of diseases. Regardless of the mechanism for its production, jaundice almost always indicates some degree of liver dysfunction. An increase in serum bilirubin may be brought about by one or more of the following mechanisms:

1. Such large quantities of hemobilirubin are brought to the liver—the result of excessive destruction of blood—that the functional excretory capacity of that organ is exceeded: hemolytic jaundice.

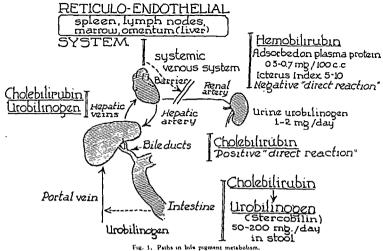
2. Because of obstruction some place in the biliary tract, cholebilirubin 'cannot reach the intestinal lumen and accumulates in (regurgitates back to) the blood stream: obstructive jaundice.

3. Damage or disease of the liver limits its ability to take up even normal amounts of hemobilirubin or excrete normal amounts of cholebilirubin. Accumulation of these in varying proportions may simulate hemolytic or obstructive syndromes: hepatogenous jaundice.

Suspicion of hemolytic jaundice arises through recognition of certain etiologic factors and the demonstration of excessively rapid destruction of red blood cells, of compensatory hematopoesis, of characteristic disturbances in bile metabolism. In these cases one should note obvious anemia, varying degrees of icterus, sharply decreased or falling hemoglobin and erythrocyte count, spherocytosis, increased fragility of the erythrocytes, increased numbers of immature red cells in the peripheral blood and marrow, increased circulating hemobilirubin (indirect van den Bergh), high icteric index, increased fecal and urinary urobilinogen output. An accurate history and careful examination usually suffice to make a presumptive diagnosis, but laboratory confirmation is always desirable and often necessary.

With complete obstruction or severe hepatocellular damage, the jaundice is usually more intense; cholebilirubin frequently accumulates to levels of 30 to 50 mg. per cent with icteric indices as high as 200. Some of the regurgitated cholebilirubin may even re-combine with

tUrobilinogen, as it appears in the urine, is rather unstable; exposed to air and sunlight, it changes rapidly to urobilin. If determination of urinary urobilinogen is to be used as a measure of liver damage, then quantitative examination must be carried out on a freshly voided or properly preserved sample of urine.



plasma protein to give the indirect diazo reaction again. When bile pigment fails to enter the intestinal tract for either cause, fecal urobilinogen decreases to a mere trace, and urinary urobilinogen may disappear entirely, though bilirubinuria persists.

With varying degrees of obstruction and liver damage, these findings may be equivocal; fecal and urinary urobilinogen may be normal. Increase in both urinary bilirubin and urobilinogen suggests that hepatic damage rather than biliary obstruction predominates.

With hepatogenous jaundice, one should expect to find excessive amounts of both hemobilitubin and cholebilitubin in the blood stream. The same factors responsible for the liver damage may initiate hemolysis of red cells; damage to liver cells may simultaneously interfere with secretion of hemobilitubin, allow cholebilitubin to leak back into the blood stream, and also prevent bile pigment from entering the intestinal tract.

With all these overlapping features, one can usually speak only of predominantly hemolytic, obstructive, or hepatogenous jaundice. Hemolytic types are most frequent in children. Obstructive jaundice in infancy is generally found only with other distinctive features of congenital malformation of the bile ducts. Fortunately, pediatricians are rarely confronted with the serious clinical problem of differentiating between obstructive causes of jaundice for which surgery is indicated and hepatogenous causes which strongly contraindicate operative intervention.

#### II. Some Tests of Liver Function in Jaundiced Patients

Tests of liver function based on excretion of any dye from the blood stream into the biliary tract are theoreti-

cally and technically unsound in the jaundiced patient.

The hippuric acid test is frequently difficult to evaluate. Detoxification of an excessive amount of benzous acid to hippuric acid by combining the former with glycine measures the functional capacity of the liver to manufacture glycine. It usually fails to differentiate hepatitis and chronic biliary obstruction and depends furthermore on adequate intestinal absorption as well as a normal urinary output. Cumbersome though it may be, this test is sometimes useful as an index of liver damage in children.

While it is true that the blood cholesterol is usually elevated in obstructive jaundice and the ester fraction is reduced with hepatocellular damage, interpretation of these must usually depend on the observed trend over a series of determinations. Cholesterol levels cover a wide range in normal children, and the esters may be reduced by various infections.

Evaluation of impaired glycogenolysis by carbohydrate tolerance tests or following the injection of adrenalin have limited usefulness in differentiating types of jaundice. Liver damage is judged to be present if more than three grams of galactose appear in the urine after the ingestion of forty grams. When jaundice has been present for a week, results of this test are usually negative. Of course, many children have transient and various degrees of glycosuria spontaneously with any type of liver disease.

The serum alkaline phosphatase is often greatly increased with obstructive jaundice; moderate increases may be seen with incomplete degrees of obstruction. Levels are usually not affected when jaundice is due only to liver damage.

The importance and usefulness of estimations of urinary and fecal urobilinogen have been emphasized and

TABLE 1

	Fecal Urobilinogen	Urinary Urobilinogen	Urinary Bilirubin
Normal Adult <sup>2</sup> Infants, to 2 yrs. <sup>3</sup> Children, 3-11 yrs. <sup>3</sup>	50-250 mg./day 2.5 mg./day 2-6 mg./day		None
Hemolytic Jaundice	Increased	Increased	None
Obstructive Jaundice	Trace or none	None	Increased
Hepatogenous Jaundice	Trace, normal, or positive	Trace, normal, or positive	Increased

expected changes are shown in Table 1. The reader is referred to other papers for more complete quantitative data.<sup>2,3</sup>

A reduction in prothrombin eventually occurs with obstructive jaundice, due to impaired absorption of vitamin K from the intestine. With severe damage, the liver may be unable to synthesize prothrombin. Adaptations of the simple test for prothrombin level following orally and parenterally administered vitamin K could be more widely used in the study of jaundiced patients, particularly when there is confusion in differentiating primarily obstructive and hepatogenous types. If a lowered prothrombin level is elevated by parenterally administered vitamin K after failure by the oral route, it would seem logical to assume that the liver is responsible, and that the prothrombin deficit is due to obstruction.

Decreasing albumin and increasing globulin levels may indicate hepatic damage, provided other factors which can produce these changes are excluded.

#### III. Some Diseases of Infancy and Childhood Exhibiting Jaundice as a Prominent Manifestation

In hemolytic disease of the newborn (erythroblastosis fetalis), jaundice present at birth or appearing within forty-eight hours is a most characteristic feature. Most cases result from a process of isoimmunization, as illustrated by the now familiar Rh relationship. Though manifestations of this disease are protean, excessive hemolysis with the appearance of pallor and jaundice are most regularly noted.

Aspects of prematurity are outstanding; secondary features include hemorrhagic manifestations and signs of compensatory hematopoesis, such as erythroblastemia, enlargement of the liver and spleen, circulatory failure, appearance of "shock", or asphyxia. Edema of more than physiologic degree is rarely encountered except in severe cases—stillborn or dying so early that effective therapy cannot be instituted.

The most important warning signals, permitting the clinician to anticipate the disease before delivery of the infant, include a history suggesting its occurrence in previous pregnancies, transfusion reactions in the mother at any time, and a proved basis for isoimmunization.

It should be remembered that erythroblastemia is only a feature of compensatory hematopoesis, and though it is present as a valuable diagnostic and prognostic sign in the majority of cases, its absence does not rule out the diagnosis. Erythroblastemia may be lacking in the most fulminating cases. In those more benign, with slower

hemolysis and milder symptoms, jaundice and erythroblastemia may go unrecognized.

Pertinent laboratory studies should demonstrate a rapidly declining hemoglobin concentration and red blood cell count, increasing bilirubinemia, increase in bile excretion by all routes, an early indirect van den Bergh reaction, and usually the presence of agglutinins in the maternal serum against the infant's red cells. Compensatory or secondary features, such as erythroblastemia, hyperplastic marrow, leucocytosis with immaturity, reduced prothrombin level and platelet count, and evidences of myocardial, hepatic, renal, or cerebral damage, may also be encountered.

Therapy consists of early and adequate transfusions, given as often as necessary to maintain an effective hemoglobin level of 10 grams or more, prevention of hemorrhage by this means as well as by intravenous administration of vitamin K, oxygen, and conventional supportive care always indicated for premature infants.

With early recognition and proper therapy, prognosis may be good. The dangers of residual cerebral degenerative changes (kernicterus) and cirrhosis have almost cer-

tainly been overemphasized in the past.

Physiologic jaundice of the newborn usually appears after thirty-six hours and before the sixth day; it may be intense in 30 to 40 per cent of infants, in whom the level of serum bilirubin exceeds 4 to 5 mg. per cent. It is usually most obvious and prolonged in those prematurely born. There seems to be no doubt that this icterus is due to rapid blood destruction and temporary inability of the liver to "keep up" with excretion of the resultant excess bilirubin. Aside from the time at which such icterus appears, the most valuable identifying characteristic is the obvious complete well-being of the infant.

The icterus index may be very high; quantitative studies show a high serum bilirubin of indirect type, which slowly declines. The stool contains excess bilirubin, and bilirubinuria is common. There are no symptoms or other abnormal signs in the uncomplicated case. The appearance of physiologic jaundice coincidentally with any other disease in this age period is apt to confuse the diagnosis or lead to erroneous conclusions.

The prognosis, of course, is uniformly excellent; the jaundice usually clears in two to three weeks but occasionally persists longer. We have recently seen it remain for four months in a prematurely born infant.

Obstructive jaundice in infants is almost always caused by congenital malformation, occlusion, or absence of the bile ducts; occasionally cases may be attributed to unduly viscous inspissated biliary secretion and inflammatory

scarring.

Usually the early features are nothing more than apparent physiologic jaundice; during the second and third weeks, however, there is progressive and obvious increase in jaundice rather than the expected clearing, and other features of obstruction become prominent: acholic stool, dark urine, anorexia, vomiting, hemorrhages, weight loss, marked enlargement of the liver, and eventual cirrhosis. The directly reacting bilirubin reaches extreme levels, serum phosphatase rises progressively, and tests of liver function show irregular abnormalities. Severe anemia

appears, with decreased fragility of red blood cells, deficiency of prothrombin, and prolongation of bleeding and clotting time. Exploratory laparotomy should always be done as soon as the diagnosis is made, because some of the abnormalities causing obstruction can be surgically corrected. Fat-soluble vitamins should be given parenterally, and hemorrhagic manifestations prevented or treated by parenteral vitamin K and blood transfusions.

Jaundice caused by congenital syphilis has been very unusual in our recent experience § with syphilitic infants and has never been a prominent clinical feature. Diffuse interstitial or gummatous hepatitis is one of the commonest pathologic features found in infants dying with congenital syphilis, and its presence in some living cases is often suggested. In 60 infants with congenital syphilis, we encountered 3 or 4 plus flocculations sixten times. These showed no apparent correlation with clinical severity of the infection, age of the patients, presence of jaundice, or evidences of liver damage. These results cannot be interpreted until more data are accumulated from non-syphilitic infants for comparison.

The jaundice we have noted in early congenital syphilis appears clinically to be no different from that described as physiologic, except that it may persist slightly longer. We have seen no proved examples of resultant true interstitial cirrhosis. The other diagnostic symptoms and signs of congenital syphilis almost completely overshadow the very questionable diagnostic significance of jaundice or hepatomegaly.

In the absence of epidemic or endemic relationships, it may be difficult to recognize and diagnose properly acute catarrhal jaundice. Clinicians and pathologists generally agree that the problem of differentiating this benign condition from fulminating acute yellow atrophy is essentially one of grading. Its frequent association with various infections suggests that the manifestations are not specifically related to any single one, and a satisfactory etiology cannot be established for the majority of cases. This of course implies that some yet unrecognized virus may be responsible. The disease usually occurs between the third and fifteenth years and is characterized by a rather vague, insidious, mild onset with low-grade fever, nausea, vomiting, diarrhea, and pain over the liver. After three or four days, the fever slowly declines, with appearance of jaundice most noticeable in the sclerae. Pruritus, bradycardia, and changes in blood pressure are unusual in children. There may be extreme tenderness and transient enlargement of the liver. A nondescript morbilliform rash occasionally appears. Hepatocellular damage may be so severe that bile pigment fails to enter the intestinal tract-simulating complete obstruction of the biliary tract. The icterus index of the serum is high, with bilirubin giving a direct or biphasic reaction. There may be other objective evidences of liver damage, with defects in prothrombin leading to occasional hemorrhagic manifestations. Glycosuria and acetonuria are common. Serum from these patients frequently yields significantly high titers of heterophil antibodies. The cephalin flocculation test is uniformly strongly positive.

§Unpublished data on treatment of congenital syphilis with penicillin.

After a week or two all symptoms subside, though visible jaundice and slight enlargement of the liver may persist longer. During the acute febrile phase and certainly until objective studies exclude serious manifestations or other causes of jaundice, these children should remain in bed and have a high carbohydrate diet reinforced with intravenous glucose if necessary. Routine administration of vitamin K is justified. Once fever and early symptoms have subsided, the diagnosis is usually obvious. Further rest and dietary regulation beyond this stage probably do not affect the rate of recovery. Complications are unusual, though very occasional cases of mixed citrhosis may occur; we have seen only one example in which this relationship seemed clear.

Weil's disease (leptospirosis) is occasionally encountered, but we suspect many more cases than we are able to prove. Usually acquired from ingestion of the organism or contact with urine of infected rats (barefoot children, puddle-wading, rice-fields), the disease is characterized by sudden onset of severe chills, fever, nausea, vomiting, pain in the muscles and abdomen (liver); the latter may be excruciating. The incubation period is about one week. Meningismus is common, and there may be widespread hemorrhages. Enlargement of liver and spleen is an inconstant feature. Jaundice may be entirely absent but usually appears early, resembling the severe "catarrhal" type with uniformly strongly positive cephalin flocculation tests. False positive Wassermann reactions are commonly noted, and leptospirae may be isolated from blood (first six days) or urine (after twelfth day) by direct dark field examination or by appropriate animal inoculations. Routine urinalysis frequently demonstrates features of acute pyelonephritis. Anemia and leucocytosis are usually extreme. Late in the disease or in convalescence, the diagnosis may be confirmed by appropriate complement fixation or agglutination reactions. Early treatment with convalescent serum or arsphenamine has been recommended. The disease usually runs an acute course of about two weeks, with slow convalescence. Mortality rates as high as 40 per cent have been reported, and prognosis is roughly related to the intensity of jaundice.

L. canicola infections may resemble Weil's disease closely but can be differentiated by demonstrating the etiologic agent or by specific agglutination reactions.

Jaundice caused by sepsis, while unusual, is almost always a very late and ominous prognostic sign appearing in the course of an obvious, overwhelming infection. A moribund, athreptic, icteric infant who was recently admitted with innumerable metastatic abscesses and staphylococcal bacteremia provided a classic example. Such cases are also occasionally encountered with pneumonia, large infected burns, peritonitis, or tetanus. It seems obvious that many cases so diagnosed in the past have in reality been examples of hemorrhagic disease of the newborn; certainly proved instances due to sepsis are comparatively rare nowadays. The jaundice is most often of a combined hemoltyic and obstructive type, and evidences of hepatic dysfunction may be extreme. Bilirubin is increased in both urine and stool and gives a biphasic reaction in the serum. As previously stated, jaundice and

other evidences of liver damage usually appear as late serious prognostic signs, though in an occasional case they may overshadow other features. Demonstration of a septic focus and a positive blood culture should clinch the diagnosis. Therapy is of course primarily directed at the causative infection with appropriate sulfonamide or antibiotic and additional measures, such as infusions of glucose containing vitamins K and C and repeated small transfusions.

Various hemolytic syndromes (familial jaundice, sickle cell disease, Cooley's anemia, acute hemolytic anemia of Lederer) may exhibit jaundice as a prominent feature; here the diagnosis can only be established by fulfilling specific criteria for each. It is very unusual to detect recognizable clinical features of familial jaundice during the first five years. We have frequently encountered crises with sickle cell disease among older infants and toddlers, and most cases present pathognomonic features at some time during childhood. Splenectomy may be justified after hemolytic crises have occurred early in life. Our clinical observations following this procedure are encouraging, though enough time has not elapsed for final evaluation. Besides characteristic hematologic features peculiar to each of these syndromes, there are variable high levels of serum bilirubin, giving the indirect or delayed van den Bergh reaction; fecal and urinary urobilinogen are increased; splenomegaly is prominent.

Acute hemolytic anemia (Lederer) is characterized by sudden onser of severe anemia with jaundice, sometimes for no apparent cause. While fatalities occur in rare severe examples, most cases respond dramatically to transfusion, with rapid recovery. Associated hemorrhagic manifestations, splenomegaly, and cardiac failure may be prominent. Evidences of rapid blood regeneration usually appear at the height of the disease.

Exogenous factors producing jaundice include, aside from infections, mismatched transfusions, certain poisons, and drugs. Sulfonamides, phosphorus, and the arsphenamines are the drugs most likely to produce hemolytic anemia or severe liver damage and jaundice of

mixed type; chloroform is rarely used as an anesthetic agent at present, and we have encountered no examples of iaundice due to this agent. Following more than two thousand injections of mapharsen and sulfarsphenamine in infants and children, we have found no cases of jaundice or other serious toxic manifestations related to these drugs.

Phosphorus remains the commonest poison responsible for severe liver damage; most of these cases develop after accidental ingestion of roach or rat poison. Following a brief latent period with evidences of gastric irritation, features of acute yellow atrophy develop-intense jaundice, severe hemorrhagic manifestations, hypoglycemia, delirium, convulsions, coma, and death. There is apparently a wide range of susceptibility to the effects of this poison, and very small doses have led to fatalities. Emetics, complete gastric lavage with 1:1000 permanganate, high carbohydrate diet, and intravenous glucose should be administered on suspicion. Once jaundice has appeared, mortality is high. The clinical features are identical with those seen in acute yellow atrophy.

Sulfonamide drugs are apt to cause hemolysis and enough liver damage to result in visible jaundice, with increased excretion of fecal urobilinogen. Appearance of jaundice during administration of these drugs contraindicates their further use and calls for vigorous measures to support liver function.

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The American College of Surgeons announces that 3,152 hospitals in the United States and Canada are included in the 1944 approved list. A total of 3,911 hospitals were included in the 1944 survey and the approved hospitals represent 80.6 per cent. The first annual survey in 1918 included 692 hospitals of 100 beds or over of which only 89 or 12.8 per cent merited approval. Hospitals of 25 beds and over are covered in the current surveys. On December 31 of each year the ratings of hospitals under survey by the American College of Surgeons automatically terminate. The status of every hospital based upon all data collected from the current survey is reconsidered each year. The government has in contemplation subsidizing state hospital surveys (see Federal-State Programs for Child Health and Medical Care, page 205 in this issue).

#### Chickenpox Encephalitis\*

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ECAUSE central nervous system complications of chickenpox are far from common and because there are several interesting features concerning them, a case of chickenpox encephalitis is here reported with a discussion of some of the aspects of this disease.

A nine-year-old girl developed the first lesions of chickenpox on May 10, 1944. She was a healthy child, had had no unusual illnesses and had had uncomplicated measles three months previously. The disease followed the expected course except that it was severe, in that she had very numerous lesions, with many on the mucous membranes of the mouth, throat and genitalia. She was extremely uncomfortable and ran a moderately high fever during the first few days. On the seventh day of the disease when her temperature had been normal forty-eight hours or more, her lesions had dried or become scabbed and she was apparently well, she suddenly developed a temperature of 101° with severe headache and vomited once. The following day she was afebrile, had no headache but felt very dizzy all the time and staggered when she walked. At this time she was not particularly uncomfortable and was amused by her peculiar disability. However, during the next twenty-four hours she started to vomit and vomited persistently at least once an hour whether she took anything by mouth or not. She also developed more vertigo and staggered so that she could scarcely walk. She was then admitted to the hospital. Her symptoms became worse for about forty-eight hours and then gradually improved.

During her hospitalization she had an entirely afebrile course. Physical abnormalities, except for the healing chickenpox lesions, were limited to neurological findings. She was quite drowsy, would answer questions only after a delay and very slowly. She tended to forget the details of a few hours before but was well oriented as to location. Her neck and back were at no time stiff. Kernigs were negative. Pupils were equal and reacted to light and accommodation. Eyegrounds were normal. There was an occasional inconstant rotary nystagmus. The general muscle tone was poor so that tendon reflexes were hard to obtain but at times these were present and normal. Babinskis were negative. However, there was a marked ataxia as shown by point to point tests and positive Rhomberg. She could follow instructions, though slowly, and anything she was asked to do brought out her extreme ataxia. When sitting, she could not hold herself upright but swayed from side to side and then fell. When asked to extend an arm or leg or reach for anything, she would go through a wavy and devious path and could 'not sustain the position.

Urine, blood count and sedimentation rate were normal. The spinal fluid, taken on the fifth day of the encephalitis at the height of the symptoms, was also normal.

\*Read before Northwestern Pediatric Society, September 29, 1944.

The pressure was 110 mm. of H<sub>2</sub>O, there were 4 mononuclear cells; the protein was 17.0 mg. per cent; sugar 79.5 mg. per cent, culture sterile.

For the first five days of hospitalization it was necessary to maintain her hydration by intravenous and rectal fluids because of the persistent and violent vomiting. After that she was able to retain sufficient quantities by mouth. On the fourth hospital day she was less drowsy but still vomiting and ataxic and by the ninth hospital day, or twelfth day of encephalitis her slowed and dulled mentality had returned entirely to normal and the ataxia was enough better so that she could get in and out of bed though with considerable unsteadiness. At the end of three more weeks there was a minimal ataxia and a slight nystagmus; at the end of the sixth week there were no residual signs at all and she has remained perfectly well to date. It was concluded that this was a case of chickenpox encephalitis with most of the brain involvement occurring in the cerebellum.

By far the best and most complete discussion of chickenpox encephalitis is found in an article by E. Ashworth Underwood. <sup>1</sup> His article consists of a complete analysis of 119 cases from the literature, plus one case of his own. His appendix summarizes briefly 12 or more cases, bringing the total up to 132 cases reported through 1935. These cases have been presented from all aspects; that is, course, prognosis, laboratory, pathology, epidemiology and etiology. Therefore, the few remarks I shall make are based principally upon this work. Since that time, 40 more cases have been reported and of these <sup>2,7,4,5,0</sup> eight are in the American literature. The others are mainly European.

There is no reported series of chickenpox cases large enough or representative enough to give an accurate estimate of the percentage which develop central nervous system complications. The nearest we can come to it is from a summary by Bullowa and Wishik 7 in which they report five cases of encephalitic complications in 2,534 hospital admissions for chickenpox, or an incidence of about 0.2 per cent. However, I feel sure that this incidence would be considerably lower in a series of cases taken at random. The occurrence of chickenpox encephalitis does not seem to be influenced by the age or sex of the patient or the season of the year, but the complication is more likely to arise following a severe attack of chickenpox than after a mild attack. Also, an individual who has suffered a previous disturbance of the central nervous system may be more susceptible to an encephalitic complication.

The most interesting fact about this subject is that chickenpox of the central system may take one of several forms. These have been classified and divided into six major divisions by Underwood, as follows:

1. Meningo-encephalitis. A patient with this form of

the disease will have meningeal signs as well as those of encephalitis, i. e.: convulsions, drowsiness, coma, etc.

2. Pure encephalitis which may take one of several forms: a) Lethargic encephalitis where the involvement is mainly cerebral with convulsion, drowsiness or coma and eye signs. b) Acute cerebral tremor in which there may be an acute tremor of one or more parts of the body and muscle spasm. c) Cerebellar syndrome in which the involvement is limited to the cerebellum and the patient has ataxia, vomiting, vertigo, speech changes, nystagmus. d) Choreo-athetotic forms in which the symptoms are those of a chorea. e) Non-characteristic encephalitic forms.

The second group, that is, the pure encephalitic forms, compose half of the cases of chickenpox complications in the nervous system. Within the group, the cerebellar syndrome occurs by far the most frequently. The case I have just reported obviously fits into this cerebellar syndrome.

Myelitis which may show the neurological picture of a) typical ascending or transverse myelitis, b) anterior poliomyelitis, c) multiple sclerosis.

Neuritis or polyneuritis.

5. Ocular manifestations such as paralysis of eye muscles, ptosis, neuroretinitis or optic neuritis.

6. Other conditions not classified and which will obviously include any of the neurological complications classified in the above.

Aside from any one of the above types, one may find, and often does, an encephalitis which shows the characteristics of two or more of these. The course of the disease varies with the form it takes. In general, one may expect an interval of one week to two or three months before complete recovery occurs or before it can be said that the patient will have some permanent residual. A few cases are fatal and death may occur anywhere from a few hours to two or three weeks after the onset. As could be expected, there is no specific therapy and the patient must be treated symptomatically.

The onset of the encephalitis in relation to the chickenpox may be from a few days before to two or three months after the first appearance of chickenpox lesions. However, by far the greatest number of cases have their onset from the fourth to the tenth day of the chickenpox.

The only laboratory investigation of significance is that of the spinal fluid. Probably a small majority of cases have normal fluids. The abnormal findings may be pressure, slightly to markedly increased, cells varying from a very few to 80 or more, usually with a predominance of mononuclears, protein slightly to markedly increased, and sugar occasionally elevated. The pathology from autopsies on the few fatal cases shows such a variable picture that it can be said only that there is no pathological picture absolutely characteristic of chickenpox encephalitis,

Prognosis of this disease in general is only fair. Twelve of 107 of the cases reviewed by Underwood died. Sixteen cases, or 15 per cent, showed permanent sequellae of various types; there was complete recovery in 73 per cent. Complete recovery is most common in the cases classified as the cerebellar syndrome and least common in the groups with myelitis and eye complications. Bergman and Magnusson 8 briefly summarized the cases in the literature between 1933 and 1939 and then added 10 of their own. They were considering the disease largely from the point of view of prognosis and found a mortality of 3 in 25 cases from the literature and, in 1 of their 10 cases, a mortality corresponding very closely with that of Underwood. Their other 9 cases recovered completely and were all normal when followed up several years later. None of these cases, however, fall into the groups which Underwood considered most likely to leave sequellae.

We can conclude that chickenpox encephalitis is an unusual condition in which the prognosis must be guarded. However, if it takes its most usual form, the prognosis is good.

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## A Third Epidemic of Primary Virus Pneumonitis Among Infants in Minnesota

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HE epidemic character of primary virus pneumonitis of infants makes it of immediate interest to all concerned with the care of young infants. A third epidemic of the disease has just been observed in a group of newborn babies at the University of Minnesota hospitals. It appeared just four years after the last well-defined epidemic which occurred in February and March, 1941. This in turn occurred just four years fol-†Department of Pediatrics. University of Minnesora Hospitals, University of Minnesora. lowing the first recognized epidemic which was in January, February, and March, 1937. Following the original description of the disease 1 small epidemics were reported from various other localities during the early months of 1941. The apparent effectiveness of certain preventive and therapeutic measures makes its early recognition of considerable importance.

Briefly, primary virus pneumonitis is characterized by a high degree of contagiousness and by a predilection for



Fig. 1. A photomicrograph of a pharyngeal smear showing cyto-plasmic inclusion bodies in epithelial cells. (Stain H and E.)

very young infants. The earliest symptoms are sneezing and coughing. Attacks of cyanosis and dyspnea are common and may even be the first symptoms recognized. A thick white tenacious exudate in the throat is usually evident. The examination reveals fine rales over certain areas of the lung, the right upper lobe being the most common site. Roentgenograms of the chest reveal soft patchy shadows in the affected areas with accompanying signs of emphysema. The febrile response may be lacking or of low grade. A biphasic fever curve has been observed frequently.

The most significant diagnostic feature is the pharyngeal smear which shows cytoplasmic inclusion bodies in the epithelial cells,2 In the present epidemic (Fig. 1) they have been found in large numbers in every case. Control patients in the same age group rarely have inclusions. As previously reported, the lungs from fatal cases have typical cytoplasmic inclusions in the bronchial, bronchiolar and alveolar epithelium. Necrosis and sloughing of bronchiolar epithelium and peribronchial infiltration of mononuclear cells characterize the micropathologic

Epidemiological observations indicate that this disease is confined largely to the period of early infancy. The prematurely born infant is especially susceptible although he may be past the stage of immaturity. There is an apparent lack of neonatal immunity in these babies. In the first epidemic reported the mortality rate was 83.33 per cent in a group of 12 prematurely born infants. Older children and adults appear in the main to be immune to the agent responsible for the disease in infants. However, inclusion bodies are not infrequently found within the cytoplasm of epithelial cells in pharyngeal smears of older children and adults with mild respiratory infections.

For these latter reasons pooled adult serum has been employed therapeutically as well as prophylactically. In the 1941 epidemic pooled adult whole blood was given intramuscularly in a few cases, but the experience was insufficient for satisfactory evaluation of its effects. In a recent epidemic (1945) pooled human serum from ten young adults was given subcutaneously in doses of 25 to 30 cc. to each of seven babies in the newborn nursery, all of whom showed signs of the disease at the time. Within twenty-four hours, amelioration of symptoms was apparent in all but one case. The same dose of serum was again given to this baby, following which improvement was evident. Amelioration of symptoms was so striking for the next five or six days as to suggest that the epidemic was controlled. However, exacerbations were again noted in three of the treated patients. One of these was found by the nurse to be very cyanotic and. despite all efforts, died within a few minutes. Additional pooled adult serum was given to the other affected infants with apparent benefit. Sudden, unexpected death due to pneumonia was observed in two instances in the previous epidemic. These have been reported elsewhere.3

In 1941, Dr. C. A. Aldrich & reported that the evanotic attacks of young infants apparently suffering from this infection were relieved by the use of adrenal cortical extract (cortin). We have used it with apparent benefit in several infants with pneumonitis. The recent reports of Dougherty and White 5,6 demonstrating rapid increases in antibody titers in association with an increase in serum globulin and a marked reduction of lymphatic structures following the injection of cortical extracts, suggest the rationale for this form of therapy. As noted above, the cellular response, like that in other virus diseases, is largely mononuclear in type.

Oxygen, administered by means of a small tent, gives these patients with cyanosis definite relief, and is the treatment upon which we have to rely for the most severely ill infants.

#### SUMMARY

1. Within recent years three distinct epidemics of virus pneumonitis have occurred among young infants in Minnesota at intervals of four years (1937, 1941, and 1945).

2. The disease can be diagnosed readily from the characteristic symptoms and the finding of large numbers of cytoplasmic inclusion bodies within the epithelial cells in

a stained pharyngeal smear.

3. Pooled adult serum has been found to have some prophylactic value. When used therapeutically in doses of 25 to 30 cc. it likewise appears to ameliotate the symptoms of the disease somewhat. Adrenal cortical extract may be helpful in treating these patients. Administration of oxygen is of paramount importance when cyanosis develops.

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## Intratibial Infusions in Children

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METHOD for intratibial infusions in children has been recently described by H. I. Arteiter and J. Greengard.<sup>1</sup> It is the purpose of this paper to introduce a modification of the technic reported by these investigators. The modification described here simplifies the aforementioned method because of the use of a new needle.

#### MATERIALS

- 1. Schleicher 2 sternal aspiration needle with metal adaptor (Fig. 1 and 2).
  - 2. Intravenous needle, 17 gauge.
  - 3. Glass syringe, 20 cc. capacity.
- 4. Intravenous transfusion flask and tubing, preferably with a 2 cc. Luer syringe with a side connection.
- 5. A well-padded board with a heel support—the board preferably to be the length of the leg.

#### TECHNIC

The tibia has been chosen because of 1) its anatomical position, 2) the marrow cavity is large and permits a flow of fluid at almost any given rate, and 3) it is extremely difficult for the patient to disturb the needle because of the stabilization of the leg.

The leg is comfortably fixed to the board with a twoinch elastic bandage. The site chosen for the puncture is about  $1\frac{1}{2}$  to 2 cm. below the insertion of the tendon of the quadriceps muscle. This point and a large surrounding area is prepared with a routine antiseptic solution, and draped with sterile towels. It is important to observe sterile technic throughout this procedure. The area chosen for the puncture is then well infiltrated with 1 per cent novocaine. The periosteum must be well injected. The No. 17 intravenous needle is introduced into the skin at a 45° angle, and with a firm pressure and a twisting motion of the needle, an attempt is made to make a groove in the cortex of the bone. One may ascertain that this has been achieved by withdrawing the needle and looking for a spicule of bone in the point. One is now ready to introduce the Schleicher needle into the marrow cavity. The needle is adjusted to the desired depth and pushed through the skin puncture wound at a 45° angle, along the groove previously made in the bone. The needle is then straightened so that it is at right angles to the tibia. Then with a firm constant pressure and a twisting motion the needle is forced through the cortex into the bone marrow cavity. A characteristic "give" is felt as the needle passes through the cortex into the marrow cavity. To ascertain that the needle is in the cavity, the stilet is withdrawn and the tip examined for marrow tissue, which at the pediatric age range is red. If no marrow tissue is seen, the Schleicher needle is lengthened or shortened. This is done by holding the guard firmly against the skin and turning the head of

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the needle in the desired direction. The 20 cc. syringe with the metal adaptor attached is now filled with normal saline and attached to the Schleicher needle. The saline is then forced into the cavity at a rate not faster than 5 cc. per minute; after approximately 10 cc. have been injected the saline is then aspirated. The fluid should

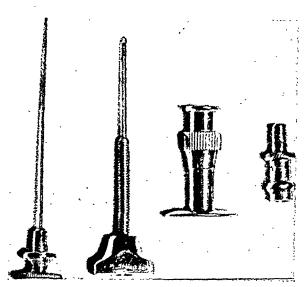


Fig. 1. Schleicher sternal aspiration needle with metal adaptor.

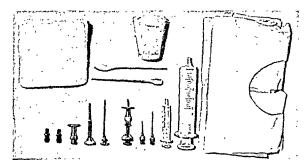


Fig. 2. Essential materials needed for these intratibial transfusions.

contain bone marrow. If the latter is not obtained on first aspiration, further injection of the saline may be necessary, followed immediately by aspiration. This injection and aspiration is done, for it is desirable to rupture some of the larger interosseous blood vessels, thereby insuring a rapid absorption of the fluid. When the saline can be injected into the cavity with relative ease, the syringe and adaptor are removed from the Schleicher needle and the Luer syringe is attached. Figure 3 shows the Schleicher needle in situ with the Luer syringe at-

tached. It is recommended to begin the transfusion with normal saline flowing in at the rate of 45 drops per minute for the first hour as the minimum rate. Thereafter



Fig. 3. Schleicher needle in situ with Luer syringe attached.

the speed at which the fluid is to run in is based upon the desired fluid intake in twenty-four hours using 15 drops per minute as 1 cc. The flask should be elevated at least three feet above the level of the needle. Because the rate of flow decreases in about seventy-two hours, it may be necessary to elevate the flask up to the height of five feet above the level of the needle to insure the proper rate of flow. If the flow drops down to an undesirable speed, the Luer syringe is removed and the cavity irrigated with 20 to 30 cc. of saline, alternately injecting and aspirating. The Luer syringe is then reattached. It is imperative that the needle and the surrounding area are covered with sterile gauze.

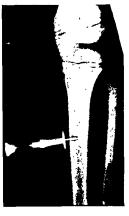


Fig. 4. X-ray film of needle in situ.

#### REMOVAL OF THE SCHLEICHER NEEDLE

To remove the needle, the guard is held firmly against the skin and the needle shortened by turning the needle head counter-clockwise. Do not pull needle out before the instrument can be moved to and fro with ease. This procedure will prevent injury to the cortex. The puncture wound is now covered with a sterile pressure dressing.

#### CASE REPORTS

Case 1. This type of infusion has been used at this hospital on a seven-year-old white male who developed generalized peritonitis following a perforated appendix. Conservative treatment of the case was instituted requiring the use of the Wangensteen nasal suction tube continuously for 32 days. During this time it was necessary to afford carbohydrates, proteins and vitamins by the parenteral route. The ordinary intravenous and subcutaneous routes were first instituted. At a later date, when it became obvious that continuous parenteral fluid was necessary, intratibial infusions were begun. The types of fluid given by this route were as follows: normal saline, 5 per cent glucose in normal saline, 10 per cent glucose in normal saline, 10 per cent Amigen, sodium sulfadiazine, human plasma, whole blood, and parenteral preparations of thiamin chloride, cevitamic acid, and nicotinic acid. The rate of flow of these fluids varied from 1 cc. per minute to 5 cc. per minute. This rate was varied throughout the entire procedure to meet the critical needs of the patient. The needle was first inserted into the left tibia where it remained undisturbed for six days. During this time, approximately 144 hours, 7,550 cc. of fluid was given. Then, because of the slow rate of flow, the needle was transferred to the right leg where it remained for two days when the needle was accidentally pulled out. Twelve hours later, the needle was re-inserted approximately 11/2 cm. above the original site and remained in place in its new position for six more days. During this eight-day period, a total of 7,800 cc. was given. This makes a total of 15,350 cc. in fourteen days with an average of 1,100 cc. per day. It is felt that this daily intake may easily have been increased if the rate of flow had been accelerated. However, clinically this was an adequate fluid intake for this patient. It is well to note that after the reinsertion of the needle in the right tibia, there was no extravasation of fluid from the original puncture wound into the subcutaneous tissues, indicating the first puncture site had already sealed itself in twelve hours. During this entire procedure no undue discomfort was noted by the patient while administering the fluids at these various rates.

Case 2. The second case on which this type of infusion has been used was a three-year-old white female who entered the hospital with the diagnosis of ruptured appendix and generalized peritonitis. Continuous nasal suction was needed, and therefore parenteral fluids were indicated. A Schleicher needle was introducd into the right tibia at the site previously described. The following fluids were given: 5 per cent glucose in normal saline, plasma, penicillin, coramine, thiamune chloride, cevitamic acid and nicotinic acid. A total of 1,500 cc. of fluid was given in

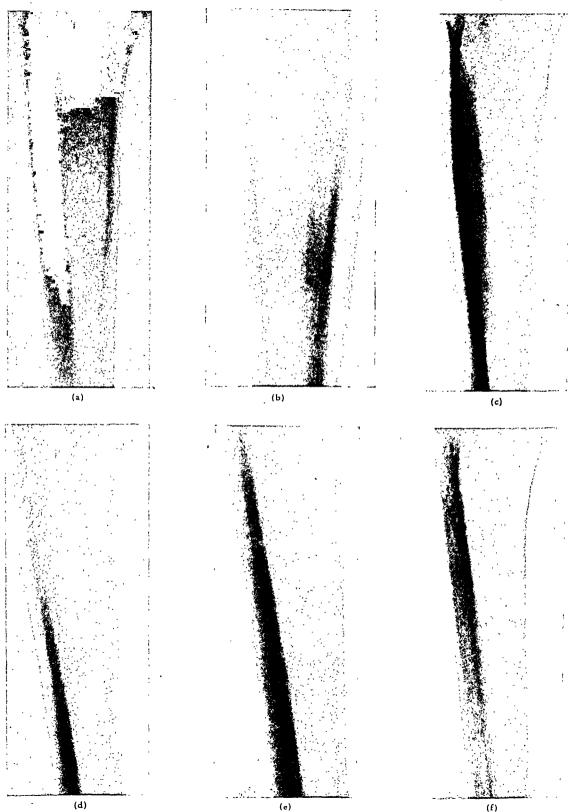


Fig. 5. a) X-ray of the left tibia immediately after removal of the Schleicher needle. b) X-ray of left tibia six days after removal of needle. c) X-ray of left tibia two months after removal of f) X-ray of right tibia one week after removal of needle. e) X-ray of right tibia sven weeks after removal of needle.

a twenty-four-hour period. At the end of this time, the clinical course of the child permitted the removal of the needle. Here again, follow-up with x-ray revealed no evidence of osteomyelitis. The child made a successful recovery.

Case 3. This is the case of a three-year-old white male with the diagnosis of influenzal meningitis, type B. This child entered the hospital in a comatose condition, and therefore was unable to take food or fluids orally. Intravenous fluids were given for eleven days. After this time, it became impossible to continue intravenous fluids because of sclerosis of the vessels. A Schleicher needle was then introduced into the right tibia, and the following fluids were given: normal saline, influenzal antiserum, 10 per cent glucose in distilled water, 1 per cent sodium sulfadiazine, and parenteral preparations of thiamine chloride, cevitamic acid and nicotinic acid. In a fortyeight-hour period, a total of 2,840 cc. was given. The rate of flow varied 45 drops per minute to 18 drops per minute. The child expired forty-eight hours after the needle was introduced. Postmortem examination revealed no reaction at the site of the puncture wound.

Infusions may be given into both tibiae simultaneously, if the fluid intake need be higher than that that could be obtained by using one tibia alone.

#### FOLLOW-UP

A close check by means of x-ray showed that there are at the present time no signs of osteomyelitis at the sites of the puncture wounds. The holes produced by the needle in the bones are healing over very well. Figure 4 shows x-ray film of the needle in situ. Figure 5 shows x-rays of the left and right tibia immediately after, one week after, and eight weeks after removal of the needle. A long range observation of these and other cases is planned and will be reported when informative data has been accumulated.

#### SUMMARY

The type of infusion described appears to be a desirable parenteral route for the administration of fluids in children. By this technic numerous reinsertions of the intravenous needle are avoided, thus sparing the patient undue discomfort. The fluid intake during twenty-four hours can be well controlled. Any type of fluid that can be given intravenously may be given by the interosseous route. The Schleicher needle is suitable for intratibial infusions and may be left in place for as long as seven days. No signs of osteomyelitis could be made out clinically and by x-ray examination.

It is our hope that this short communication will stimulate interest in this relatively new and simple type of

infusion in children.

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We wish to thank Dr. E. M. Schleicher, Parke-Davis Fellow in clinical hematology, Minneapolis General Hospital, for his many helpful suggestions.

#### Rubella in Pregnancy and Congenital Malformations\*

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THE etiology of congenital malformations has been sought eagerly for many years. Undoubtedly, the L factors are multiple, in many instances as they have been shown to be in certain other disorders, for example, cancer. Few definite advances in our knowledge were made until recently. Both Hale 1,2 and Warkany 3 have shown, in pigs and mice respectively, that deficiency of vitamin A in the maternal diet at a critical period during pregnancy will produce congenital eye deformities in the offspring. Warkany has also shown 4-7 that deficiency of riboflavin or vitamin D in the maternal diet will produce skeletal deformities in the fetus. That certain skeletal deformities in man are inherited has been demonstrated.8 It is also known that x-ray radiation of insects during the embryonic stages can produce deformities. 9 Thus, it can be seen, that physical, nutritional, and genetic factors are concerned in the production of congenital malformations.

The purpose of the present report is to call wider attention to an additional example in which disease in the \*From the Department of Pediatrics, University of Minnesota Medical School.

mother is etiologically related to congenital defects in her offspring. Several well substantiated reports have appeared recently describing instances in which the mother has had a virus disease, German measles or rubella, during the first two months of pregnancy, usually between the fourth and eighth weeks, and the child has been born with certain congenital deformities. In 1941, Gregg, 10 in Australia, reported a series of 78 cases of congenital cataract, 44 of whom also had congenital heart disease. These congenital defects occurred in infants whose mothers, with few exceptions, had had rubella during the early months of pregnancy. Swan and co-workers,11 also in Australia, subsequently reported 49 cases of rubella occurring during pregnancy, 25 during the first two months. All of the latter group of women had infants with congenital defects usually of the heart or eye. Only 50 per cent of Swan's cases having German measles during the third month had infants with defects. Of those having the disease after the third month only 13 per cent had defects. In 1944 the same group of workers 12 added ten more cases to their series. In the same year two Americans, Reese 13 and Erickson, 14 reported three and

eleven cases respectively. Thus 122 cases have been reported in which the mother has had rubella during pregnancy and the infant has been born with an anatomical defect. Usually the defects were of the eyes and heart, but the skull, auditory nerves, and brain were also affected in several cases. The eye defect described was usually a cataract in one or both eyes, and the heart defect was a patent interventricular septum or a patent ductus arteriosus. Since it is known that the lens of the eye and the interventricular septum develop between the fourth to the eighth fetal weeks of life 15 and that the embryonic tissues are particularly susceptible to virus infections,16 it might have been anticipated that such deformities would occur. In fact, Swan and his associates reported that 100 per cent of the babies born of mothers who had tubella during the first two months of pregnancy had congenital deformities.

Since these reports have appeared, we have seen two such cases at the University of Minnesota hospitals. We feel that they should be reported in order to call further attention to the seriousness of pregnant mothers acquiring diseases, especially rubella, during the early months of pregnancy. Every attempt should be made to prevent exposure to such a disease. If exposure occurs in spite of precautions, such prophylactic measures as administration of pooled convalescent adult serum should be given a trial.

#### CASE REPORTS

Case 1. H. H., a five-week-old white female, was the first child of a 24-year-old female who was perfectly well throughout her pregnancy except for rubella which she had during the sixth to the seventh week. The rubella rash lasted two or three days and as the mother didn't feel sick she remained ambulatory. The pregnancy was carried to full term; the labor was sixteen hours in duration and no difficulty, no jaundice, no cyanosis, and no convulsions were present following delivery. The birth weight was six and one-half pounds, and breast feedings were started immediately. After two weeks, because she had failed to regain her birth weight, breast feedings were discontinued and an evaporated milk formula was started by the local doctor. Meanwhile, the baby had developed a thrush infection which persisted in spite of treatment until admission to the hospital. The cataracts were first noticed at two weeks of age at the time when the thrush infection was diagnosed; it was felt by the mother that the cataracts increased gradually in size after they were first observed. The baby continued to be a feeding problem and as the question of treatment of the cataracts arose, she was referred to the University hospitals. The family history was negative for congenital deformities.

Physical examination revealed a malnourished five-week-old female who weighed six pounds and eight ounces. The only abnormalities noted were of the eyes and the heart. Bilateral cataracts were present, the left being complete and the right, partial (lens was clear anteriorly). The heart was enlarged to the anterior axillary line in the fifth left interspace by percussion. A harsh systolic murmur was heard at the apex, transmitted over the entire precordium. The hemoglobin was 11.5 grams; the white blood cell count was 11,550 with 15 per cent poly-morphonuclears, 79 per cent lymphocytes, 1 per cent monocytes, and 5 per cent eosinophiles. X-ray examination of the heart

confirmed the enlargement found on physical examination and also revealed enlargement in the region of the pulmonary conus. An electrocardiogram taken at this time was considered to be normal. The patient was given supportive treatment; she was offered a simple formula, and after several days of observation she was discharged to return at a later date for treatment of the cataracts. The heart defect was considered to be a patent interventricular septum.

Case 2. S. N., an eleven-month-old white female, was the fourth child of a 35-year-old female who was quite well during her pregnancy except for rubella which occurred during the fourth week. The pregnancy was carried to full term; the labor was normal and spontaneous delivery occurred. The baby weighed eight pounds and seemed normal except for a cataract of the left eye. No feeding problem existed in this case, but the motor and mental development was definitely retarded. At eleven months of age, the child still could not hold up her head nor sit up in spite of an adequate diet. Most of her movements seemed to be purposeless. The three siblings were living and well, and there was no family history of congenital deformities.

Physical examination revealed a well-nourished but underdeveloped eleven-month-old female who appeared grossly mentally deficient. She had many purposeless movements and sucked her fingers almost continuously. The head was 44 cm. in circumference, and the anterior fontenelle was very large (41/2 x 5 cm.) for a child of her age. A complete cataract of the left eye was present; the right eye appeared normal. The heart seemed normal in size, but a loud systolic murmur could be heard over the entire precordium and through to the back, but best heard at the apex. The remainder of the physical examination was non-contributory. An electrocardiogram taken was interpreted as being borderline normal with suggestive peaked P2 and increased Q2 voltage. The hemoglobin was 12 gm. per cent; the white blood cell count 14,400 with 35 per cent polymorphonuclears, 63 per cent lymphocytes, and 4 per cent eosin-ophiles. X-rays of the heart were normal, but x-rays of the wrist suggested a beginning Madelung's deformity. This could not be stated defintiely, however, because of the patient's age. The heart defect was interpreted as a patent interventricular septum.

#### SUMMARY

Attention is called to the occurrence of certain congenital anomalies in infants whose mothers suffered from rubella (German measles) between the fourth and the eighth weeks of gestation. Two new cases showing both congenital cataracts and congenital heart defects are reported. The importance of preventing rubella and other infections during the early months of pregnancy is pointed out.

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#### The Management of Rheumatic Fever

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Thas been stated that there are approximately 460,000 active cases of rheumatic fever in the country at the present time. It is my contention that these cases can be properly cared for only by the physicians of the United States.

Because of the complex nature of this disease—complex largely because of the chronicity and tendency to recurrence, and because of the fact that we are dealing with growing children-many ramifications in this matter have to be considered. We know that we must maintain proper environment for these children, that they must receive the best possible medical aid, and that their education must be maintained during the convalescent period of their illness. The magnitude of this problem, in my mind, places it beyond the scope of any agency, whether governmental or private. Pediatricians acting as consultants in their communities for the management of this disease, and situated strategically throughout the state. I feel can cover the case-finding and treatment of rheumatic fever better than any agency, no matter how well organized it may be.

It is becoming increasingly obvious that some aid must be given to the families of rheumatic children and to the physician who is trying to handle the cases. The disease is difficult to handle in the home because it is almost impossible to maintain the necessary discipline and proper bed rest for its duration. It may be in this field that governmental or social aid would be of greatest value. The various rheumatic fever programs which have been set up have proven their worth to the communities where they have been establishd. Most of them have worked on the basis that their function is to give a temporary lift to the situation, to assist the patient over the period of his acute illness and convalescence, and have then turned him back to his private physician. I feel that this is as it should be, and that there is no need for so complete a socialization of rheumatic fever cases that the private physician is eliminated from the picture.

Plans proposed whereby the case-finding was done by school nurses, county nurses, and social workers, without consultation with the family physician, are wrong. Close observation of school children by the nurse is, of course, necessary, and if the child seems ill he should be referred to his doctor. I do not feel that diagnosis lies in the realm of the nursing profession, and especially when such diagnosis leads to reference to a special clinic. Surely this is the realm of the family physician. If we as physicians have failed in meeting our obligations in guarding the health of our community, it is time we corrected this instead of turning this function over to lay groups. If

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we have been lax in our recognition of rheumatic fever, we should inform ourselves of the multiplicity of this syndrome, and assume our responsibility as guardians of the health of our people.

Some plans for the management of rheumatic fever go so far as not only to care for the child during the attack, but to follow him continually until he has reached the arbitrary age of twenty-one. Such a plan may have merit in crowded city districts where the financial level of the patients is such that private medical care is out of the question. However in this broad land of ours where medical service is on the highest plane in the world, the nation-wide adoption of such a plan would be needless, prohibitively expensive and contrary to the best interests of the patient.

It is obvious, however, that governmental and social agencies have a definite role in the management of theumatic fever. The patient is a child and, as a child, he is a growing being, who requires formal education and social training. During the acute stage of his illness he must have proper medical care. He must be made comfortable, fed properly, and receive the benefit of good nursing care whether he be in a home or hospital. His contact with his doctor must be such that at no time does he suffer neglect, or have any therapeutic measure neglected which might hasten his recovery or save his life. After this comes a period of months when he needs to adjust himself to his illness, maintain his sense of balance so that he does not develop an inferiority complex, and maintain his education so that he can return to normal life without the handicap of having lost out in school.

Here it is that agencies can help. They can provide for the hospital and convalescent care of these children so that the family will not be financially depleted. They should provide for a diagnostic clinic which can also be used as a follow-up clinic. These clinics should have ample physical space and facilities, to permit the referring physician to be present and discuss the diagnosis, treatment, and prognosis of the patient. The cooperation of the private physician should be further solicited through frequent visits to the hospital, where his suggestions and interests should always be encouraged. In this way, the family physician does not lose contact with his patient, while the diagnostic clinic and hospital service can be of great educational value to the medical profession. As soon as the patient has passed the infectious state, he should be turned back to the family and the family physician, where proper precautions can be taken to prevent a recurrence of the disease. The need for aid may arise again; but in the meantime attention and financial aid can be directed toward the continuance of the above program, and the patient-physician relationship will have been maintained.

## The Physician and the Child with Defective Speech

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HE physician, irrespective of his training or interest concerning speech problems, is the one person to whom most parents logically turn for counsel when one of their children manifests a defect in speech. Because he has not been offered training in the special methods of speech rehabilitation, he is prone to regard disturbances of speech as falling outside of his field of responsibility. Consequently it is important that the physician acquaint himself with the various factors concerned in the etiology of delayed or abnormal speech development in order that he may direct such parients to scientifically trained speech clinicians.

As a preface to the discussion of abnormal speech it is desirable to define normal speech development for comparison. The sequence of speech development in the normal child may be described in the following way. The birth cry is reflex vocalization which by two to three weeks has become a crude vocabulary in that adults caring for the infant can to a certain extent distinguish cries due to such factors as hunger, cold or pain. At the sixth or seventh week the babbling period appears. It seems to remain essentially reflexive in character and is commonly referred to as cooing and gurgling. Lalling starts at the early part of the second six-month period. During this stage hearing and sound production become associated by the infant and repetition of heard sounds begins. The congenitally deaf child may repeat sounds during this period but he does so from internal stimuli or for oral pleasure. At nine to ten months the echolalia period begins. The child's repertoire of sounds and sound combinations gradually becomes confined to those occurring in language of his environment. At the age of twelve to eighteen months most children are beginning to use speech as adults do. That is, they intentionally use conventionalized sound patterns to manipulate their environment. This usually involves the use of single words from twelve to eighteen months. Later, at two to two and a half years, two or more words are coupled in simple sentences. By the eighth year of life most children articulate correctly all the sounds of our language.

The four factors to be taken into account in the diagnosis of delayed speech development are: 1) the child's entire developmental rate in non-speech motor areas, 2) his intellectual level, 3) the status of his hearing apparatus insofar as its use can be measured, and 4) his need for speech usage. The physician is often not aware of the importance of these items in relation to speech development.

When it is appreciated that speech is the most highly complex motor skill the human organism performs, the necessity to evaluate the level of more gross motor developments becomes obvious. In the pediatric outpatient \*Presented before the Northwestern Pediatric Society, March 2,

1945.
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department at the University of Minnesota hospital motor coordinations are carefully tested and a thorough developmental history is obtained from the parent or other informed adult. Later the speech clinician interviews the parent for requestioning concerning motor development. In this way we are furnished with a test of the consistency of parental response. As it is well known that parents are often unable to recall accurately the dates of first step, eye-hand coordination, grasping, and so forth, and that there is an almost universal tendency to seek some easy explanation for any negatively evaluated trait, the questions asked should be cautiously and non-directively phrased. We do not suggest, therefore, "And did Johnny walk at the same age your other kiddies did?" Instead we ask, "Do you remember how old Johnny was when he took his first step?" Furthermore, one should not compare a child's gross motor development to that of other children of the same chronological age without comparing the individual child's motor coordination to his own other growth rates.

The second factor to be considered is referred to by that much-abused term "intelligence". The greatest number of problems of delayed speech are not referred to the physician until the child is of school age, when his handicap becomes more acutely one of socio-educational importance. The absence or delay of speech development is indicative to many parents of inferior intellectual capacity. It is important to bear in mind that when a child lacks the use of language any estimate of his intellectual level is limited to observation of other types of performance. The child without speech cannot be measured by the yardstick used to measure his age mates. Half or more of the conventional measure is missing. It is essential, therefore, that tests of language comprehension, ability to follow directions, manipulation of objects, and so forth, be given and interpreted by an expert in psychological testing.

The difficulty of separating the third factor, hearing, from intelligence for independent measurement is tremendous. The child's responses to tests employed in measuring intelligence must be qualified by his hearing ability. Because there is no standardized, valid means of using the audiometer to test the hearing of children below the third grade level, the task is further complicated. It is possible to calculate crudely the hearing acuity of the young non-speaking child by using pictures of animals or miniature animal objects in conjunction with the audiometer. Because the young child fatigues readily in the test situation only frequencies of 512, 1024, and 2048 are used.

The fourth and least clear-cut, yet important, factor in delayed speech development is the child's need for language usage. Frequently a child whose general motor coordination is poor is over-stimulated in speech areas by his parents. There is often overwhelming pressure for

verbal responses and his inability to coordinate generally is thoroughly ignored in its relation to speech development. Again parents may frequently stimulate the child to speech in a situation where there is no need for speech. Language usage does not develop unless the child discovers that he may through the use of verbal symbols satisfy needs and desires which cannot be satisfied in any other way. Too many children have learned to speak in spite of their parents, rather than because of them.

As stated earlier, the physician is usually the first person to be consulted regarding children with delayed speech. He may refer the child to a competent otologist, who, if he finds a hearing loss, may prescribe a hearing aid. However, the need for speech training, lip reading, or other therapeutic measures exists for many of these patients. There is little that can be done to change mental retardation in most cases. In the child whose motor coordination is poor speech improvement can be effected to a limited extent by use of physiotherapy which improves his general coordination. Improvement is more likely with the added use of speech drills which the speech clinician is qualified to employ in a fashion that will sustain the interest of a young child. The fourth factor, interference with the need for speech usage, is the one which can be most successfully eliminated through counselling and work with the child and his parents. While the physician does not have the special training or the time to manage the latter aspect of the problem he has the responsibility of recognizing such disturbances and of referring these cases to qualified speech clinicians for detailed analysis and treatment. It should be pointed out that in individual cases various other factors may operate to cause delay of speech development. The four factors mentioned are, however, the most frequent and the most specific in producing this condition.

A discoursgingly large number of parents bring children to the speech clinic after delaying for one to five years because they had been assured that the child would "ourgrow" his speech retardation. In too many cases such assurance has been given by the physician. Unfortunately qualified speech pathologists are comparatively few in number and most of them are located in the larger cities. This lack of properly trained personnel is a serious deficiency, correction of which will require cooperation of physicians who recognize its significance and educational institutions offering special training in this field. It is a serious mistake to tell parents that their child will outgrow his defect even if there is no speech pathologist immediately available to whom the case could be referred. A physician in an outlying district far from a plastic surgeon would certainly not tell parents of a baby with a cleft palate that their child would outgrow his defect because the necessary help was not at hand. Nor should he give parents soothing but misleading assurance in the case of speech problems. It is only by complete cooperation and understanding between physician and speech clinician that the speech problems it is only by complete cooperation and understanding between physician and speech clinician that the speech problems of thousands of children can be met. Development of adequate service in this important area should be recognized as an essential feature of any comprehensive child health program.

### LIST OF PHYSICIANS LICENSED BY THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS FEBRUARY 16, 1945 (JANUARY 16, 17, 18, 1945, EXAMINATION)

Name	School	Address
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### American Student Health Association News-Letter and Digest of Medical News

OLIVER E. BYRD, Ed.D. Associate Professor of Hygiene

#### FOOD VALUE OF OLEOMARGARINE

The Council on Foods and Nutrition of the American Medical Association reports that the first commercial production of margarine was by the Frenchman Meges-Mouries in Paris in 1870, who had earlier developed the product. The French government had assigned to him experimental work with fats as part of the effort to produce a cheaper product which would serve in place of butter. The early product was made principally with oleo oil, but soon neutral lard and vegetable oils were used.

In 1933 more than 75 per cent of the oil used in margarine was imported coconut oil. During that year the use of soybean oil was negligible, and only 9 per cent of cottonseed oil was used. In 1942 the use of coconut oil had dropped to 1 per cent, and none was used during 1943. In the latter year 90 per cent of the oil used in margarine consisted of cottonseed (50.4 per cent) and

soybean (39.6 per cent) oils. The early deficiency of vitamin A in margarine has been corrected, primarily because of the application of the full force and influence of nutritionists throughout the country on the problem. The beginning of the widespread use of vitamin A in margarine dates from the authorization of its use in margarine manufactured in plants under Federal Meat Inspection in February 1941 and adoption of the Definition and Standard of Identity for Oleomargarine in June 1941. It is estimated that 85 per cent of the margarine was fortified by vitamin A during 1942. This increased to over 90 per cent in 1943, and reports indicate that now more than 99 per cent of the margarine sold to civilians contains not less than 9,000 U.S.P. units of vitamin A per pound. All of the nearly 90 million pounds purchased by federal agencies in 1943 was required to be so fortified. A small percentage of the total production classed by industry as "industrial sales" and sold to bakers and other establishments is unfortified.

The Council reaffirms its confidence in the nutritional value of margarine containing vitamin A as follows:

- 1. Margarine contributes primarily fat to the diet.
- 2. The fat is equal in digestibility and caloric value to other food fats.
- 3. The standardized vitamin A content of fortified margarine was so set that it contributes this nutritional factor in amount equivalent to average butter in accordance with information available at that time. (Recent surveys indicate a higher average value for butter.)
- 4. The milk solids other than fat (1 per cent) present in both butter and margarine are of negligible nutritional importance.
- 5. When margarine is fortified with vitamin A the investigations that have been made lead to the conclusion that it can be substituted for butter in the ordinary diet without any nutritional disadvantage.

Reference. American Medical Association. "Margarine fortified with vitamin A," Journal of the American Medical Association 126:168 (No. 3) Sept. 16, 1944.

## DISINFECTION OF AIR BY VAPORS AND MISTS

O. H. Robertson of the American Public Health Association's Committee on Germicides and Antibacterial Agents reports that recent developments in the field of air sterilization with glycol vapors have shown that triethylene glycol is the most potent agent yet found. This substance is highly lethal in concentrations of 1 gm. of the glycol dispersed in 200 million ml. or more of air for the respiratory pathogens and influenza virus. Tests on triethylene glycol consisting of maintaining monkeys and rats for many months to a year in an atmosphere saturated with this substance have revealed no damaging effects. Likewise the long continued ingestion of this substance has had no detectable harmful action.

Investigation of the various conditions which affect the germicidal activity of glycol vapors has shown that atmospheric humidity is of marked importance; a minimum of 35 per cent relative humidity being essential for the killing of dust-borne bacteria. Practical application of the use of glycol vapors for the purpose of controlling airborne infection has had to await the construction of suitable apparatus for the dispersion of glycol vapors into large enclosed spaces and the development of an instrument to control automatically the concentration of glycol vapor in the air. Rapid progress is being made in the solution of both these problems. Reports of the use of propylene glycol vapor in a children's hospital suggest that it was effective in reducing the incidence of acute respiratory infections.

Reference. Robertson, O. H.: "Disinfection of air by germicidal vapors and mists," American Journal of Public Health 34:886-87 (No. 8) August 1944.

#### TUBERCULOSIS IN THE ARMY

Colonel E. R. Long of the Surgeon General's office reports that the incidence of tuberculosis is only one-tenth as high in the Army as it was in the last war. The principal factor in the decrease is the screening process which excludes men with active or potentially active tuberculosis before they are inducted. Another reason is that among civilians tuberculosis is only one-third as prevalent now as it was in the first world war.

Technical equipment had not been developed for quick and accurate detection of this disease in the last war. By means of x-ray photography tuberculous cases now can be excluded with great accuracy. This screening process came to be used universally in the army in the spring of 1942. Nearly one million men were inducted without this x-ray examination, which to a large degree accounts for the 10,500 men discharged from the army because of tuberculosis between December 1941 and December 1944.

Since the beginning of the present war, the army has rejected about 150,000 men who showed signs of pulmonary tuberculosis. Several thousand others were excluded by local boards of the Selective Service system before they reached induction centers. The x-ray photographs of all men inducted in the army are kept on file. X-rays

are always taken also when army personnel are discharged. The rate of discharge is low for young inductees. The tuberculosis rate for men over 40 is eight times as high as for those under 20 years of age. The rate overseas is lower than in the homeland, largely because those who have this disease were weeded out before bing sent to a combat theater.

The army's system of handling these cases represents an outstanding contribution to the national program.

The tubercuolsis control program of the armed forces has attracted the attention of the military and public health services of foreign countries, delegations from several of which have come to this country to observe the program.

Reference, Long, E. R: "Tuberculosis in the army," Bulletin of the U. S. Army Medical Department 11 (No. 85) February 1945.

#### THE INHERITANCE OF BIRTHMARKS

Sarah J. Denaro of Radeliffe College reports on a study of four families which substantiates other investigations showing birthmarks to be inherited. There are a great many superstitions concerning the presence of birthmarks, but there is now considerable evidence to show that they are inherited.

In one of the families of this study two large brown nevi (birthmarks) were inherited from grandmother to two daughters, to granddaughter in the same place—on the left side of the body at the level of the waist.

In another family two daughters were found exhibiting a nevus on the chin in the exact position in which it appears on the chin of the father.

In a third family the same type and size of birthmark was inherited on the face by two members and on the back by three other members.

In a fourth family six members showed the same type of nevus on the face, while six others showed a similar nevus elsewhere on the body.

The tendency for members of a family to inherit a birthmark in the same position is not universal, but studies of pedigrees show that the frequency of such localization is very high.

Reference. Denaro, Sarah J: "The inheritance of nevi," Journal of Heredity 33:215-18 (No 7) July 1944.

#### Book Reviews

Year Book of General Therapeutics, 1944, edited by Oscar -W. Bether, Ph.M., M.D., F.A.C.P. Chicago: The Year Book Publishers, Inc., 447 pages including indexes, 1945, price §3 00.

Hundreds of busy doctors have learned to watch for the useful handbooks published annually by the Practical Medical Series of Year Books founded in 1900. The year 1944 saw such rapid development in the use of drugs and technics that this new manual of treatment is of even greater interest and value than usual. A glance at the "jacket-quuz" is likely to abash the average doctor and to cause him to realize how vague is much of his knowledge of some of the most recent work of his colleagues.

In the present volume the sulfonamides hold first place in point of interest. Penicillin comes next with 62 pages devoted to its miracles and to the attending antibacterial substances patulin and penatin. The new methods of administering anesthetics, of transfusions and infusions are given careful attention; new mechanical devices and tests are described and illustrated The vast amount of reading that has gone into the making of the book has been digested and organized in excellent fashion for speedy reference. The index to authors is an admirable feature.

In short this book lives up fully to the reputation established by previous manuals in the series and high praise is due the editor.

Arterial Hypertension, its Diagnosis and Treatment, by Invine H. Page, M.D., and Arthur Curtis Corgonan, M.D. Chicago: The Year Book Publishers, Inc., 344 pages including appendix, index, bibliography; 1945, price \$3.75.

Hypertension is the greatest peace-time killer in the western world. Yet its origin and causes remain a mystery, its treatment hardly more than a hopeful gesture and only the telaturely few seem unduly concerned about it. In their admirable little book Doctors Page and Corcoran of the research division of the Cleveland Clinic Foundation, have classified, organized

and summarized the significant high spots in our knowledge to date of this disease against a background of relevant information essential to their understanding-facts of the changes as the disease progresses in the anatomy and physiology of the circulatory system, the kidneys, the brain. The diagnostic tests at various stages are described as are the approved treatments,—drugs, vitamin A, psychotherapy and surgery,—with enough of the theories on which each is based.

The authors see the problem of essential hypertension "as a pattern of fluid Becoming rather than static Being, as a stream which, according to the nature of the watercourse, flows swiftly or slowly, darts through canyons or expands into still lagoons." In their diagnosis, prognosis and treatment, therefore, their focus is on the patient as a whole person rather than on the particular symptoms whereby he deviates from the normal

In their introduction they state that their intention has been to produce a useful manual; that it is "presented for those whose special interests do not lie exclusively in this field" Such readers will not doubt the success of their achievement. In its concisiones, comprehensiveness and clarity it is a model of medical exposition for the medical student and the busy practioner.

You Must Relax: a Practical Method of Reducing the Strains of Modern Living, by EDMUND JACOBSON, M.D. Published by arrangement with The University of Chicago Press, princed in the United States of America by the Maple Press Co, York, Pa. 261 pages, 29 illustrations, 1943 revised edition; price \$1.75.

This is truly a vademecum for the nervous individual, and physicians will do well to prescribe it for their patients who are overworked and unduly worried. If they can be taught to relax without the use of sedative capsules, then a constructive program has been instituted. It is one of those books that, after once having been read from cover to cover, may be picked up from time to time with great benefit when the original training is losing some of its impressiveness.

The illustrations are very beneficial in clarifying the teachings in the text. The jacket with subgroupings of when, why and how to relax is sure to intrigue the busiest reader to look inside

The revised edition deals with new developments and contains three new chapters—one on war nerves, one on sleep, and the chapter on blood pressure has been completely rewritten.



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MINNEAPOLIS, MINNESOTA, MAY, 1945

#### THE ETIOLOGY OF CONGENITAL **MALFORMATIONS**

Dr. James M. Hayes Dr. A. E. Hedback Dr. E. D. Hitchcock Dr. R. E. Jernstrom Dr. A. Karsted Dr. W. H. Long Dr. O. J. Mabee Dr. J. C. McKinley Dr. Irvine McQuarrie

In this day of enormously accelerated scientific progress we have become so inured to hearing of epoch-making new discoveries that disclosure of any achievement less spectacular than radar, the electron microscope, D.D.T., sulfa-drugs or penicillin is likely to go unnoticed by most of us not working in the particular field concerned. This appears to have been the fate of certain significant reports pertaining to the causation of congenital malformations. One of the shorter papers in our present issue (page 197) calls attention to the serious consequences that may result to the offspring from certain mild infections in pregnant women. Reports concerning the experimental production of congenital defects in lower animals by dietary restrictions during the period of gestation are of similar significance.

Congenital anomalies were long regarded by physicians as atavistic "freaks of nature" or "throw-backs" with their pathogenesis so obscure that mortal man could never hope to divine its true nature. However, an imposing array of evidence is now available to prove the erroneousness of this assumption.

More than three decades ago Hertwig and others demonstrated that certain deviates from normal structural development could be produced in early amphibian embryos by exposure to radiant energy. As early as 1921 a group of experimental nutritionists in England (Zilva, Golding, Drummond and Coward) observed that young pigs were not infrequently born with some of their limbs missing when sows were deprived of certain vitamins throughout pregnancy. Twelve years later Hale described pigs born with anophthalmos, cleft palate, misplaced kidneys and accessory ears as a result of their mothers being fed a vitamin A deficient diet. Warkany and Schraffenberger have more recently obtained similar results in rats by excluding vitamin A from the maternal diet.

These latter workers and Nelson earlier induced congenital malformations of the skeleton in about one third of the young of female rats that were reared on a diet deficient in riboflavin. Malformations of this type in the rat could be prevented by riboflavin if given as late as

the thirteenth day of gestation. Thereafter, however, it was found to be ineffective because in the rat the fourteenth and fifteenth days correspond with the most critical stage in the development of the cartilagenous and osseous skeleton from undifferentiated mesenchymal structures. An entirely different pattern of skeletal malformations was produced in the offspring when the diet of pregnant rats was made deficient in vitamin D.

Whether a similar relationship between maternal diet and congenital anomalies applies in the case of man is not known. Nevertheless, it should be kept in mind as a possibility when diets are being prescribed for pregnant women. The clinical evidence presented in support of the claim that congenital malformations such as cataracts and certain cardiac anomalies result from the occurrence of rubella in the mother at a critical period during pregnancy appears to be almost incontrovertible. It naturally follows from this observation that every effort possible should be made to protect the pregnant woman against all forms of acute infection.

I. McO.

#### FEDERAL-STATE PROGRAMS FOR CHILD HEALTH AND MEDICAL CARE

Five permanent federal-state programs are now in effect which contribute to or specifically provide for child health services and medical care. These programs provide grants-in-aid of federal funds for governmental services which involve state cooperation in their administration. All but one of these programs require matching of federal funds by state and local funds. Under the supervision of the Children's bureau, United States department of labor, these programs make provision for maternal and child health services, services to crippled children, and emergency maternity and infant care for the wives and infants of men in the four lower pay grades of military service. General public health work and venereal disease control are provided under the United States public health service. A total of approximately \$70,000,000 is appropriated annually by the Congress for these services.

In spite of this rather impressive provision for child health care there is at present considerable activity to complete arrangements for the improvement of public health services. Both public and private organizations and agencies are active. Only a few months ago the Congress inaugurated a program for which a maximum of \$10,000,000 per year was authorized for grants-in-aid to states for the establishment of nation-wide control of tuberculosis under the supervision of the United States public health service. Presently the Congress is seriously considering the passage of a hospital construction act which, during the first year of its operation, proposes to make available \$110,000,000 to the states for surveys of hospital facilities and construction in accordance with needs that may be demonstrated. There is also a proposal for a federal-state financed program of dental health service and care.

An outstanding proposal for administration of public health services has recently originated in the American Medical Association.1 On June 10, 1942, the House of Delegates of the association passed a resolution recom-

mending the establishment of full-time qualified local health departments in every community of the country. The American Public Health Association approved this recommendation in October, 1942, and established the basic plans for the development of these local health departments.2 It is significant that this proposal is supported by the two great medical organizations of this country. In the field of specific services for children the American Academy of Pediatrics at the national meeting in November, 1944, developed a set of principles for a postwar program of complete child health services and medical care.3 One month earlier, an official of the children's bureau, in discussing the EMIC (emergency maternity and infant care) program and postwar planning for child health, suggested a plan of federal action for the further development of child health services. 4 Multiplicity of proposed programs indicates the number and variety of problems that need to be met.

What will be the eventual pattern of organization and administration of these services? In the last two years the EMIC program has given rise to much discussion and speculation by the medical profession. It is certain that this, the EMIC program, will not be the prototype of future child health services. The EMIC program is financed entirely and is controlled by the federal government and involves state cooperation only for its administration. Moreover, the EMIC program is designed to meet the immediate needs caused by the war. We do not expect to find in such a program the pattern for permanent operation which must fulfill the varying needs of all communities in this country. Undoubtedly, the future pattern for child health services will be a combination of the many proposals, a few of the more outstanding of which have been mentioned.

There appears to be little doubt that the plan of federal-state financing is here to stay. Federal financing has been established with the idea of making equitable distribution and coordination on the basis of local economic need and resources. Federal advice and planning have been used to stimulate a reasonable nation-wide coordination and uniformity of development. The local full-time qualified health departments as recommended by the medical associations are basic in any public health program and are greatly needed to permit local participation which is essential to the planning and administration of individual community needs. The cooperation and planning, financing and administration will probably prove to be federal, state and local. Certainly the future development of health programs for children is worthy of the careful thought and consideration of every physician and citizen if an intelligent coordinated and economic overall program is to be assured.

ROGER L. J. KENNEDY, M.D.

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  4. Eliost, Martha M. The children's bureau, EMIC and postwar prinaming for child health; it statement. J Pediat 23 331-367 (Oct.) 1944.

## . MEET OUR CONTRIBUTORS . .

Dr. Irvine McQuarrie (Minneapolis), our guest editor, is as everybody knows, Chief of the pediatrics department of the University of Minnesota. A graduate of Johns Hopkins medical school in 1921, he came to Minneapolis fifteen years ago and ever since has spread his gospel far beyond the confines of Minnesota through disciples he has trained and inspired here, many of whom are now themselves heads of departments in medical schools throughout the land. (Represented in this issue are students of his now at Tulane, Texas and McHarry medical schools). But Dr. McQuarrie is a man of parts whose interests extend far beyond children. Editor-in-chief of Brennemann's Practice of Pediatrics, and one of the Journal-Lancet's own editorial staff, he is also the author of Experiments of Nature and the Advancement of Medical Knowledge; member and contributor to many research societies whose interests vary from biology to epilepsy, he has recently been elected president of the Minnesota branch of the American-Soviet Medical association. The list of pediatrics societies to which he belongs includes even Mexico's while the American College of Dentists claims him as an honorary member.

Dr. Roger L. J. Kennedy (Mayo Clinic, Rochester, Minnesota) is interested primarily in children's diseases, but mothers form an important background in his conception of his job, as is indicated in his editorial. After graduating in 1922 from Minnesota's medical school, he took his postgraduate work at the Mayo Foundation and was a fellow there in pediatrics the following year. Since 1933 he has been associate professor of pediatrics at the Mayos. He is also interested in parks and from 1930 until 1940 he served Rochester as park commissioner. A member of many medical and pediatrics societies he likewise belongs to the fraternities Alpha Omega Alpha, and Sigma Xi.

Dr. Arild E. Hansen (Galveston, Texas) since leaving here has added much to the prestige of pediatrics in Texas and to the fame of Dr. McQuarrie's department. Receiving his M.D. at Minnesota in 1924, he continued his training at the universities of Heidelberg and Vienna and at Yale. In 1934 the University of Minnesota awarded him his Ph.D. Dr. Hansen is not only Professor and Chairman of Texas University's pediatrics department but he is also the Director of its Child Health Program. His society memberships include the American Pediatric Society, the Society for Pediatric Research, and the American Institute of Nutrition.

Dr. Reynold A. Jensen (Minneapolis) is now associate professor of pediatrics and psychiatry at the University of Minnesota hospital. Graduating from Minnesota's medical school in 1935 he decided to make psychiatry his specialty and to that end accepted a resident position at the University of Rochester hospital after which he held a fellowship in psychiatry at the Institute of Penn hospital, and followed this up with an instructorship in pediatrics and psychiatry in Boston. In 1939 he returned to the University hospital in Minneapolis and is now associate professor of pediatrics and psychology in that institution. In addition to membership in various medical and pediatrics societies he is a member of the American Association for Research and Psychosomatic Medicine of the American Association for the Advancement of Science.

Dr. Alvin D. Wert (Richland, Washington) is one of the young pediatricians trained by Dr. McQuarrie. A graduate of the University of Rochester, he came to Minnesota in 1942 and spent two years studying pediatrics. He is now practicing his specialty on the west coast.

Dr. J. T. Cohen (Minneapolis) is a well-known dentist whose prime interest is in better teeth for children. He was graduated at Minnesota's College of Dentistry in 1916 and is now assistant clinical professor in the University's pediatrics department. He has done considerable research in his special field and is a member of the International Association of Dentistry for Children.

Dr. N. Logan Leven (St. Paul), clinical associate professor of surgery at the University of Minnesota, received his advanced degrees from the Mayo Foundation after graduating from Minnesota's medical school in 1928. He is an F.A.C.S., a diplomate of the American Board of Surgery and a member of the American Association for Thoracic Surgery.

Dr. Bernard C. Lannin (Minneapolis) has followed closely the lead of Dr. Leven. After receiving his medical degree in 1937, he too won the degrees of M.S. and Ph.D. at the Mayo Foundation and he too is a diplomate of the American Board of Surgery. At present he is an instructor in the department of surgery at the University of Minnesota.

Dr. E. Perry Crump (Nashville, Tenn.) was graduated from McHarry medical college of Nashville in 1941. He is another who received his pediatrics training from Dr. McQuarrie and is now on the teaching staff of his alma mater.

Dr. Theta H. Wolf (St. Paul) is a doctor not of medicine but of philosophy, now associated with Minnesota's University hospital. After taking her master's degree at Brown University she came to Minnesota for her doctorate and specialized in clinical psychology and pediatric psychiatry. She has taught at Skidmore College, Saratoga Springs, N. Y., and at Christian College, Columbus, Missouri.

Dr. R. V. Platou (New Orleans) is the head of the department of pediatrics at Tulane University. He received his M.D. and M.S. degrees from the University of Minnesota and continued his training in pediatrics at the University hospital and at the Babies hospital in New York City. He is a member of the American Academy of Pediatrics.

Dr. Samuel B. Nadler (New Orleans) is also on the teaching staff of Tulane from which he was graduated in 1936, and where he is now associate professor of medicine. He is also senior associate of Touto Infirmary, his specialty internal medicine.

Dr. Elizabeth C. Lowry (Minneapolis) is a graduate of Cornell University medical school of the class of 1935. She has practiced pediatrics in Minneapolis for six year and is on the staff of the Abbott Hospital.

Dr. John M. Adams (Minneapolis), associate professor of pediatrics at the University of Minnesota, was graduated from Columbia in 1933 where he received his M.D. and Ph.D. He came to Minneapolis for graduate work in pediatrics and has practiced that branch of medicine in the city for eight years. He is the secretary of the Northwestern Pediatric society, a member of the Central Society for Clinical Research and the Pediatric Research Society.

Dr. Robert D. Semsch (Minneapolis) is resident pediatrician of the Minneapolis General hospital. He was graduated from the University of Minnesota medical school in 1943.

Dr. Albert V. Stoesser (Minneapolis), although an associate professor in pediatrics at the University of Minnesota, is quite as interested in allergy in which he has done considerable valuable research. He received his medical degree in 1925, and having followed that with a Ph.D., he has maintained his association with the University hospital for the past 20 years. He is president of the Northwestern Pediatric society, and a member of the Society for Pediatric Research and also of the American Academy of Allergy.

Dr. Forrest H. Adams (St. Paul) prepared for pediatric practice at the University of Minnesota after graduating there in 1943. He is a member of the Northwestern Pediatric society.

Frances M. Brown received her degree, Bachelor of Science in Speech Pathology, at the University of Minnesota in 1939. As a speech clinician she has done much excellent work in Minnesota's schools and is at present central speech clinician of crippled children services in the speech clinic at the University hospital, department of pediatrics. She was the first to organize a state-wide speech field service in Minnesota with a full-time itinerant speech clinician.

#### News Items

Dr. C. H. Nelson, Billings, Montana, was elected president of the state board of medical examiners April 2, in Helena. Dr. E. A. Weldon of Lewistown was chosen vice-president, Dr. Otto G. Klein of Helena was reelected secretary. Dr. Nelson has served on the board of examiners several years.

Dr. Felix Hughes Crago, 37, a former physician of Great Falls, Montana, has been made major and promoted to the post of group flight surgeon according to word received from a base in Italy where he is stationed. Major Crago received his medical training at Duke medical school, was an intern and later resident at the University of Minnesota hospital until 1939. He completed his training in aviation medicine in 1942.

Navy Lt. Charles B. Darner, formerly with the Fargo, North Dakota clinic writes from Iwo Jima "I never realized such filth and dirt existed. I've had one bath since landing and for the first week I didn't get my shoes off. The mortar and rocket fire, land mines and sniper fire have been masty but our area is relatively quiet now." Lt. Darner has been through the Saipan and Tinian campaigns also.

Major Hugh Hawn, formerly ophthalmologist at the Fargo clinic, has been promoted in England where he is consultant at a base hospital and 14 surrounding hospitals.

Four physicians have recently been admitted by examination to practice in South Dakota and three others have been admitted by reciprocity. Among the former is Dr. Amiceto Montero, a resident of East Gardner, Massachusetts, and a native of Costa Rica. 'Dr. Montero will practice in the Castlewood community which, since the death of Dr. J. B. Vaughn, has been without a physician. Others admitted by examination are Dr. John C. Rodine, Aberdeen, Dr. Robert W. Spicher, Hot Springs, and Dr. Peter Steiner, Yankton. Under reciprocity were Dr. Ernest Brock, Rapid City, Dr. David McBroom, Redfield, and Dr. Robert Van Demark, Alexandria.

Dr. Edward A. Jackson, formerly of Albert Lea, Minnesota, has been appointed chief surgeon aboard the Milne, the largest hospital ship afloat. The ship has 1000 beds. Major Jackson is a graduate of the University of Minnesota medical school and had practiced in Atwater, California, before entering the service more than two years ago.

Dr. Wilfred McKechnie, Isle, Minnesota, has taken over the practice of Dr. J. C. Poore of Isle, who has joined the Navy.

The annual joint-meeting of the medical societies of Wabasha and Winona counties (Minnesota) was held April 2, at Wabasha. Speakers were Dr. Victor O. Wilson of the state department of health, Dr. Roger Kennedy, Rochester, and Dr. D. O. N. Lindberg, superintendent and medical director of the Buena Vista sanatorium, Wabasha.

A medical center that will include a four-year school of medicine, a university hospital, a school for nursing and provision for the coordination of medical care, public health and welfare activities of the state under one roof, seems on its way in North Dakota with the passage of a law by the 1945 legislature that makes possible not only acceptance of funds from individuals but also from the federal government. Dr. John H. Moore, president of the state public health advisory council in support of the measure pointed out that on July 1 of last year only 365 physicians were practicing in the state, twenty-six per cent of whom were 65 years of age or older.

Dr. Albert M. Limburg, Page, North Dakota, has been appointed physician and surgeon for the Northern Pacific railway.

The doctors and dentists of Bismarck, North Dakota, will no longer keep their offices open on Saturday afternoons. This action was decided upon in view of the acute shortage of trained help.

Senior assistant surgeon Abner I. Weisman of the United States public health service has been sent to Fort Thompson, South Dakota, the seat of the Crow Creek and Lower Brule Indian reservation and is starting an intensive public health program for the Indians in this region.

Dr. Patrick E. Kane of Butte, Montana, has been reappointed by Governor Ford to the state board of medical examiners for a seven year term.

The Lott hospital at Livingston, Montana, has been reopened by Miss Edith Lott after the shortage of doctors compelled its closing eighteen months ago. Drs. Eloise M. Larson and John A. March are assisting Miss Lott

Dr. C. N. Harris of Hibbing, Minnesota, was reelected to a five year term as member of the board of directors of the St. Louis county Tuberculosis and Health association at the annual meeting in Duluth, April 17.

Dr. Mario Fischer, medical director of St. Louis county Welfare board, described to the Duluth council of social agencies, April 25, plans for a 300-bed infirmary in Duluth and a 150-bed infirmary in the northern half of the county, for the care of chronically ill and infirm, his considerations being based on a recently completed study of 1242 such patients.

Dr. J. Y. Feinstein, recently removed from Seattle, Washington, to Willmar, Minnesota, has come to Minneapolis, where he will serve as doctor for the Gopher ordnance plant and practice privately.

Dr. Owen H. Wangensteen, Professor and Head of the Surgery Department, University of Minnesota, has been named by the Office of Scientific Research and Development, a member of the three-man medical commission that will leave almost immediately for Russia.

Dr. E. E. Zemke, disabled in foreign service, reopened his offices in Fairmont, Minnesota, April 2, after a special postgraduate course taken at the University of MinneDr. John W. Bushnell, Elk Point, South Dakota, has been promoted to the rank of lieutenant colonel, according to information received by his parents, Dr. and Mrs. W. F. Bushnell, also of Elk Point. He is now stationed in New Guinea and has recently returned from a special assignment to Brisbane, Australia.

## SPECIAL LECTURES AT THE UNIVERSITY OF MINNESOTA

The first J. B. Johnston Lecture on Neurology will be given by Dr. O. Larsell of the University of Oregon Medical School, at 8:15 p.m., Friday, May 11, in the Auditorium of the Museum of Natural History (Main Campus). Subject: Comparative Neurology and Our Present Knowledge of the Cerebellum.

Mrs. Johnston, who has endowed this lectureship in memory of her husband (for many years one of the four or five greatest comparative neurologists of the world) has expressed the wish that these lectures be practical. Dr. Larsell is the outstanding authority today on the morphology and significance of the different lobes of the cerebellum. His lecture should be of interest not only to neurologists, neural surgeons and otologists, but also to clinicians generally.

On Thursday, May 10, at 5 p.m., in the amphitheatre of the Institute of Anatomy, Dr. Larsell will give a lecture on the History of Medicine in the Northwest. This subject has interested him for many years and he is now preparing to publish his findings in book form.

The J. B. Johnston Lectureship Committee: J. C. McKinley, W. T. Peyton, Ernst Gellhorn, A. T. Rasmussen.

#### NOTICE TO CONTRIBUTORS

The prices on additional covers of 4-page, 8-, 16-, 20-, 24-, 28- and 32-page reprints are reluctantly withdrawn as of this date. We found that we were offering them actually at less than our contract printer was charging us. That particular item wasn't covered by our agreement and, according to his reasoning (he also billing them below cost), a rise was only to be expected with the general increases we see about us. We can feel fortunate that the quality of our "merchandise", thanks to you contributors, is ever improving and we appreciate it.

A very few copies of the two-page Report on Poliomyelitis Studies Made at Minneapolis General Hospital as published in the January 1945 JOURNAL-LANCET are still available upon application to this office. Enclose a stamped, self-addressed envelope.

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## AMERICAN SOVIET MEDICAL SOCIETY ELECTS OFFICERS

#### Minnesota Chapter to Collect Medical Books and Instruments

Dr. Irvine McQuarrie (professor and head of the department of pediatrics at the university of Minnesota medical school) has been elected president of the Minnesota chapter of the American Soviet Medical Society. Other officers elected are: Dr. R. F. Hedin, Red Wing, Minnesota, vice president; Dr. Leo Rigler, professor and head of the department of radiology at the University hospital, treasurer; Dr. Samuel Corson, instructor in physiology at the university of Minnesota medical school, secretary. The following were elected as members of the executive board: Dr. Moses Barron, Dr. E. T. Herrmann, Dr. J. A. Lepak, Dr. M. B. Visscher and Dr. O. E. Wangensteen.

The Minnesota chapter is initiating a campaign to collect medical books and instruments to be sent to Russian medical libraries and hospitals through Russian War Relief. These books and instruments are desperately needed by the Russian medical men and scientists to help them restore the essential medical educational and research facilities in the regions liberated from the Nazis. Most of the scientific libraries and equipment of schools, research institutes, and hospitals were either destroyed by the Nazi invaders, or stolen and shipped to Germany.

Medical text books published subsequent to 1926 and written in English, French, German or Russian are most welcome. Text books published prior to 1926 are not desired. Classics of any date are urgently needed.

Contributions of books and instruments may be left at the office of pediatrics, university of Minnesota hospital, or at the office of the Minneapolis committee, Russian War Relief, 813 Marquette Ave., Minneapolis, Minnesota.

Sending medical books to the U.S.S.R. is not entirely a one-way affair. Soviet publishers have been very generous with their own medical publications. The university of Minnesota library has received a number of Russian medical books and periodicals, and the Soviet publishers refused any financial remuneration. However, they will be grateful for similar gifts from us.

## Necrology

Dr. Alexander Dunlop, 87, Crookston, Minnesota, died March 19. He had practiced in Crookston for more than 60 years.

Dr. Darie Lemieux, 70, Rolla, North Dakota, died March 26 in a Bottineau hospital. He came to Rolla in 1940, having practiced in Fargo, Dunseith, and Stanley. He was a member of the North Dakota house of representatives in 1905, served four years as mayor of Dunseith, was a member of the state tuberculosis board of trustees and held the position of superintendent of the Rolette county board of health for several years. During World War 1 he was an acting assistant surgeon of the U. S. Public Health Service.



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Dr. C. I. Oliver, Graceville, Minnesota, died March 27 of cardiac thrombosis. Dr. Oliver was a graduate of the medical school of the University of Illinois, and came to Graceville in 1901 to practice here and to found the West Central Minnesota hospital. He was a captain in World War 1, and was a former state senator.

Dr. E. C. Haagensen, 75, Grand Forks, North Dakota, died March 28 at the hospital of that city of a heart attack. Dr. Haagensen was the city health officer and had been a resident of North Dakota for more than fifty years. He was a member of the Grand Forks District medical society, the North Dakota Medical association, and the American Medical association. He was graduated from Northwestern medical school in 1894.

Dr. William DeCoster, 70, Mankato, Minnesota, died suddenly March 26. A graduate of the University of Minnesota medical school 47 years ago, Dr. DeCoster had practiced in Minneapolis and in Windom before coming to Mankato in 1914.

Dr. Richard S. Forbes, 59, Duluth, Minnesora, died at St. Mary's hospital after a brief illness April 9. Dr. Forbes was a well-known surgeon, was a member of the American College of Surgeons, the American Medical association, and the St. Louis county medical society.

Dr. S. S. Shannon, 62, Crosby, Minnesota, died suddenly in his office March 28 of a heart attack. Dr. Shannon had practiced in Crosby and on the Cayuna Range for 27 years.

Dr. Henry C. Cooney, 82, Princeton, Minnesota, died at his home March 28. He had retired from practice two years ago.

Dr. Christian Jelstrup, 76, Elk River, Minnesota, died April 13, having been retired by illness for six years, following thirty-five years of practice in North Dakota and Minnesota. He was a 1903 graduate of Northwestern university school of medicine.

Dr. Rudolph H. Wald, Los Angeles, California, formerly practicing medicine and surgery at Hastings, Minnesota, died March 26 in California. Dr. Wald served in World War I.

Dr. T. T. Landa, 85, Landa, North Dakota, died March 31, in a hospital at Minot. Dr. Landa was a pioneer physician of North Dakota and it was for him that the town Landa was named.

Dr. H. W. Power, 66, Conrad, Montana, died April 3, 1945, after a lingering illness. He took his medical degree at Northwestern and in 1905 came to Conrad. He started in the first hospital in Conrad and it was largely through his efforts that the present fine hospital was built.

Dr. Henry G. Blanchard, 77, died April 14 in the Fairmont (Minnesota) community hospital. Dr. Blanchard had been a member of the staff for 17 years.

Dr. Andrew F. Moynihan, 71, Sauk Centre, Minnesota, died April 12, in his home city, where he had practiced for 40 years. Dr. Moynihan was Stearns county deputy coroner and city physician of Sauk Centre. He had served as a captain in the medical corps of World War 1.

## Classified Advertisements

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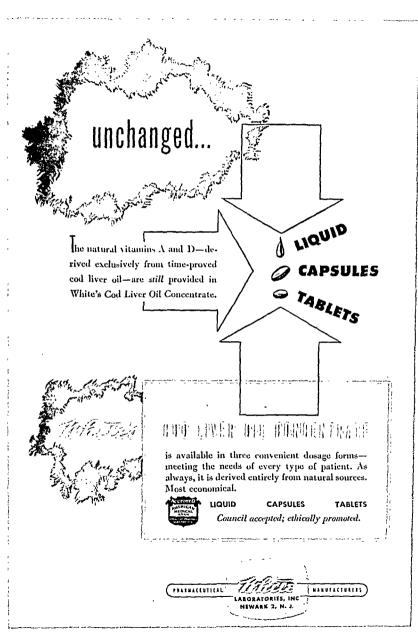
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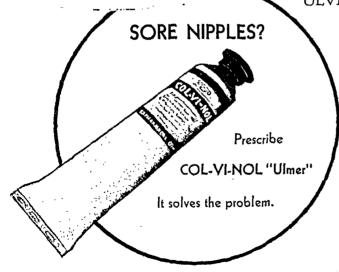
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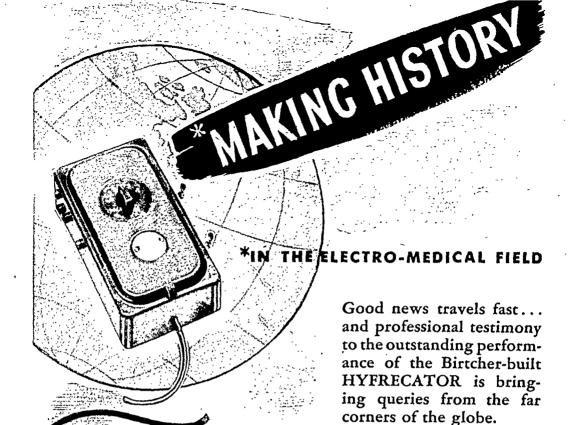
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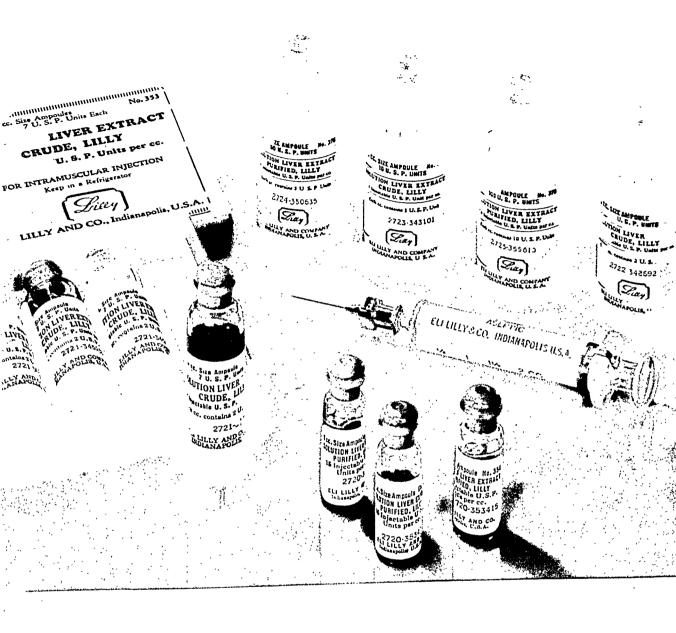
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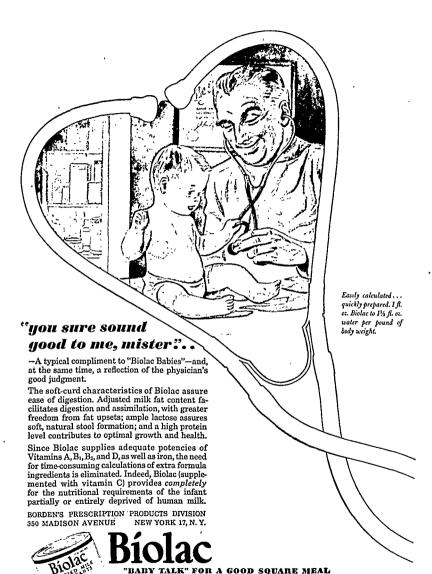


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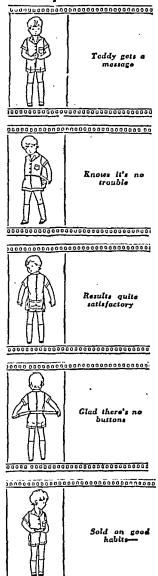
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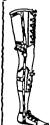
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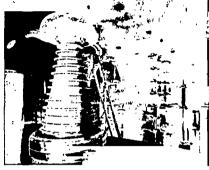
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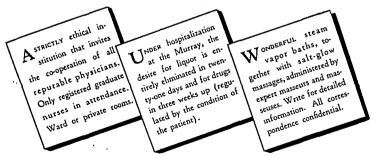
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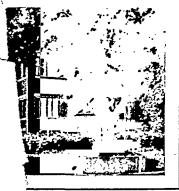
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#### June, 1945

Introduction to Symposium, R. E. Leigh, M.D.	. 211
Placenta Praevia, E. M. Ransom, M.D.	. 212
Abruptio Placenta, B. Urenn, M.D.	215
Diagnosis and Treatment of Ectopic Pregnancy, W. A. Liebeler, M.D., F.A.C.S.	218
Treatment of Deafness, Ear-Noises and Dizziness by Hypothermic Therapy, Sverre Quisling, M.D.	219
Low Back Pain in the Army Specialized Training Program, Leonard J. Stark, M.D.	223
Spurious Fitness by the Endurance Test, H. R. McPhee, M.D., P. V. Wells, D.Sc.	226
Ringworm of the Scalp (Tinea Capitis), Francis W. Lynch, M.D.	228
BOOK REVIEWS	229
American Student Health Association News-Letter and Digest of Medical News	231
EDITORIALS	
Home Nutsing Help	232
Post-War Planning for Hospitals	233
AMONG OUR CONTRIBUTORS	233
NEWS ITEMS	234
NECROLOGY	234

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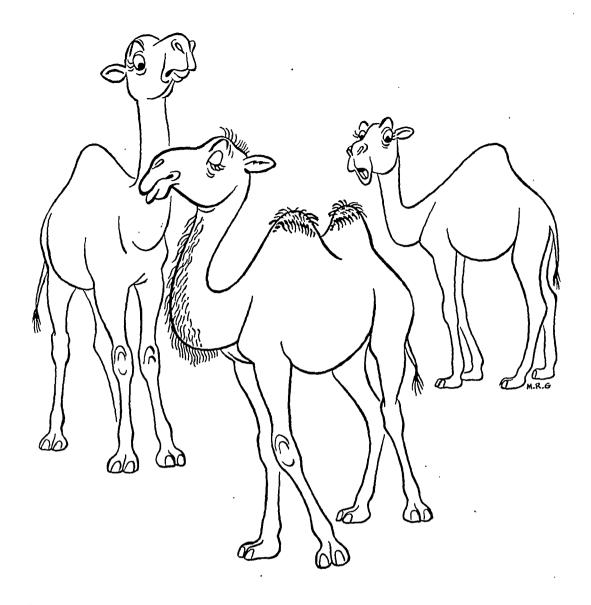
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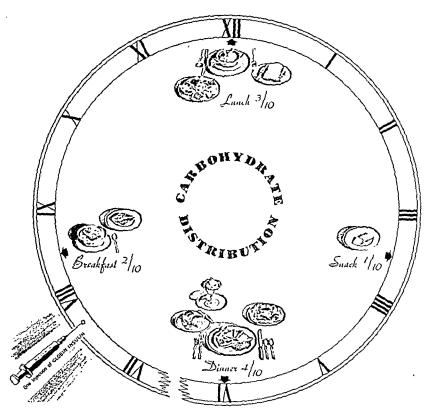


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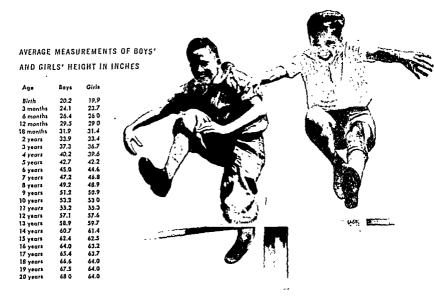
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shall curse his cowardice,
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and made them happy.

THOMAS PAINE

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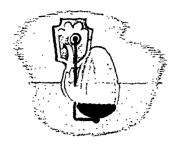


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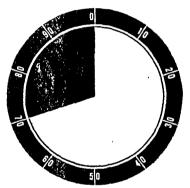
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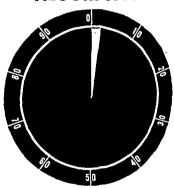
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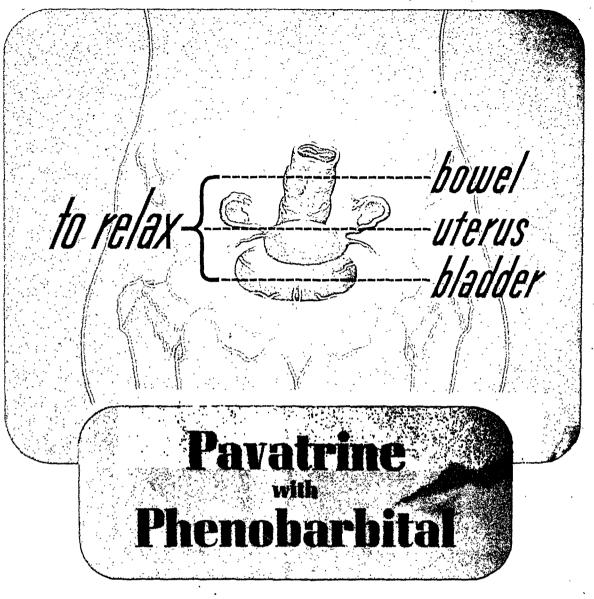
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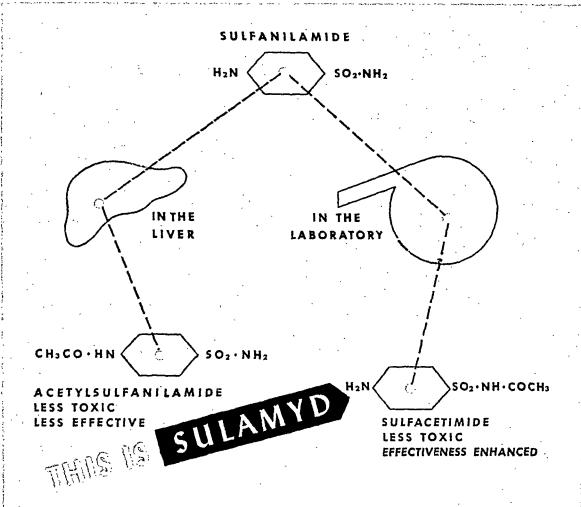
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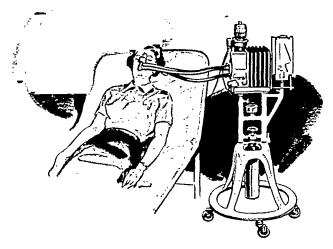
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\*Based on average reported values for milk.



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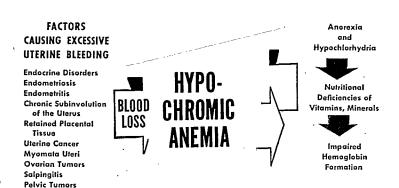
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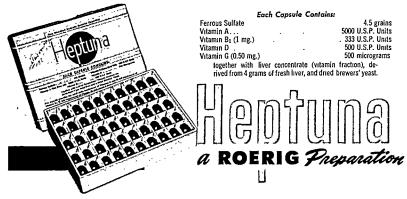
### MENSTRUAL ABERRATIONS AND ANEMIA

Among the foremost causes of secondary anemia in women are the frequently occurring menstrual aberrations which increase the volume of uterine bleeding. The resulting depression of the hemoglobin level is usually associated with reduction of gastric acidity, loss of appetite, lack of stamina, and of the sense of well-being. These conditions impair the intake, absorption and utilization of the essential blood-forming substances at a time when their requirements are increased. Thus the severity of the anemic state is increased by

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#### J. B. ROERIG & COMPANY 536 Lake Shore Drive · Chicago 11, Illinois



### L'enicillin DOSAGE TABLE\*

INDICATIONS	INITIAL DOSE (UNITS)	CONTINUING DOSAGE (UNITS)	UNITS IN 24 HR.	REMARKS
Serious Infections (staphylococcus, clostridium, hemolytic streptococcus, anaerobic streptococcus, pneumococcus, gonococ-		(a) Intravenous drip: 2000 to 5000 every hr.	40,000 to 120,000 or more	(a) Dissolve ½ of 24 hr. dose in 1 liter (1000 cc.) normal saline; let drip at 30 to 40 drops per minute.
cus, anthrax, menin- gococcus)  Adults and children	15,000 to 20,000	or (b) Intramuscularly: 10,000 to 20,000 every 3 or 4 hr.	40,000 to 120,000 or more	(b) Concentration: 5000 U. per cc. normal saline.
		or` (c) Intramuscular drip	40,000 to 120,000 or more	(c) Total daily dose in 250 cc. normal saline.
Infants	5000 to 10,000	3000 to 10,000 in- tramuscularly every 3 hr.	20,000 to 40,000 or more	Each dose in 1 or 2 cc. of normal saline.
Chronically infected com- pound injuries, osteomy- elitis, etc. Adults and children	5000 to 10,000	10,000 every 2 hr. or 20,000 every 4 hr. intramuscularly or in- travenously. Larger doses may be neces- sary at times.	40,000 to 120,000 or more	Concentration for intramuscular inj.: 5000 U. per cc. normal saline. For intravenous inj.: 1000 to 5000 U. per cc. Supplement with local treatment.
Gonorrhea	20,000 every 3 hr. intra- muscularly for 5 doses		100,000	Results of treatment should be controlled by culture of exudate.
Empyema Adults and children	30,000 to 40,000 once or twice daily into empyema cavity		30,000 to 80,000	Dissolve in 20 to 40 cc. normal saline and inject into empyema cavity after aspiration of pus.
Meningitis Adults and children	10,000 once or twice daily into subarachnoid space or intracisternally		10,000 to 20,000	Concentration: 1000 U, per cc. normal saline.
Bacterial Endocarditis Adults and children	25,000 to 40,000	25,000 to 40,000 every 3 hr. intra- muscularly	200,000 to 300,000	Continuous treatment for 3 weeks or longer. In a few cases the intravenous drip is more advantageous.

\*Based upon recommendations by Chester S. Keefer, War Production Board Penicillin Leaflet, Apr. 1, 1945; and by Wallace E. Herrell and Roger L. J. Kennedy, Journal of Pediatrics, 25:505, Dec., 1944.





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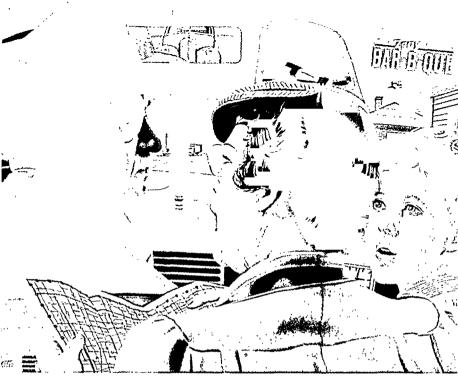


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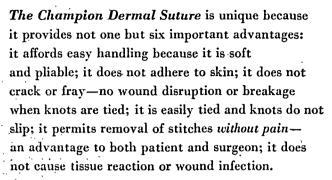


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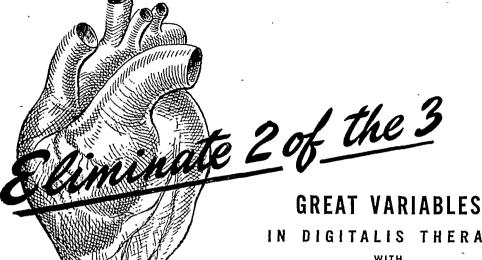
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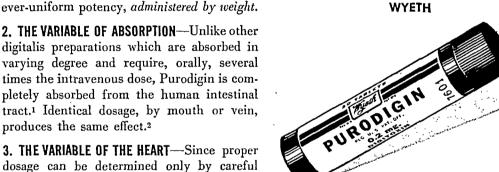
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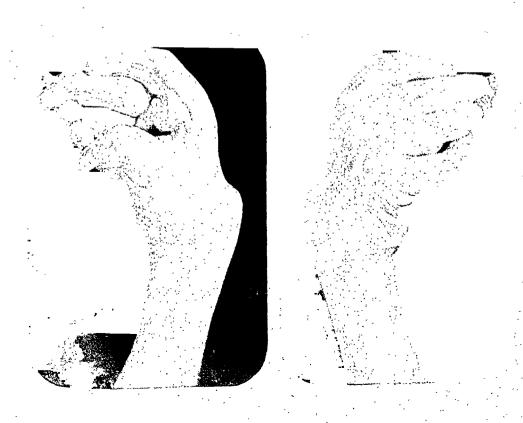
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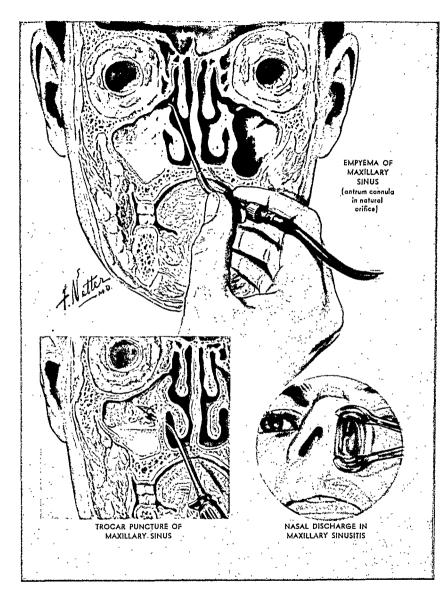
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### Symposium on Obstetrics

As Prepared for the North Dakota Society of Obstetrics and Gynecology

R. E. Leigh, M.D. Grand Forks, North Dakota

EMBERS of the North Dakota Society of Obstetrics and Gynecology: This society was organized with the express purpose of promoting a better understanding among our members by mutual assistance, to improve the practice of obstetrics and gynecology in North Dakota. Our membership is composed of practitioners having a major portion of their work in these fields, and who by application for membership have expressed a desire to increase their competency.

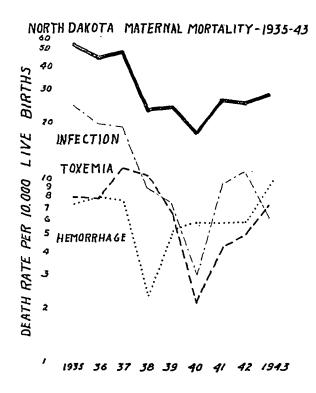
Our program for today has been developed within the purposes of this organization.

From an analysis of the statistics of maternal deaths in our state of North Dakota for the last four complete years we note that the maternal record of which we were so proud has gradually become rather bedraggled and that instead of North Dakota being the safest place in the United States to have a baby it is getting well down the list in places of relative safety. It is obvious that we can not stress effectively all the aspects that are tespon-

sible for this state's backsliding, but we can take one of the phases and give it a good going over.

In these times of war this is not the only state where the average doctor is overworked. We all realize that there are many people, in these times of prosperity, that want to have a good check-up and a catch-up in physical examinations and in elective surgery, because they can now afford the cost. It is rather easy for a physician to succumb to the temptation of having an unusual number of people in the waiting room and to have a busy day in the hospital as an excuse for skimming over his patients and doing rather superficial work.

We have also with us a Dr. Jekyll and Mr. Hyde advance in therapy, that I feel merits discussion because I think too much Hyde is being seen. I refer to the misuse of the sulfonamide drugs and penicillin. In obstetrics, especially, Mr. Hyde is giving the practitioner a false feeling of confidence; tempting him to violate the time-tried and proven safe technics in favor of inter-



ference and short cuts, salving his conscience with the thought that if a little infection shows, he can give a few doses of sulfa. or a few shots of penicillin and everything will be all right. It might cost the patient a few dollars but that can always be covered to personal advantage by telling how serious their case was and how fortunate it was that modern advances pulled them out of a bad situation (a situation that never would have occurred if more skill, more honesty, and more dependence on Mother Nature had dominated the scene instead of Mr. Hyde).

From the graph you can see that since 1940 we have had a general rise in the maternal mortality in North Dakota. I do not understand the slight drop in infection unless it may be attributed to Dr. Jekyll Sulfonamide. The definite rise in the rate of hemorrhage and toxemia I feel is due to some backsliding on the part of our obstetricians. As I have pointed out, we can not at this meeting cover the entire field suggested by this chart, our program has been arranged to deal with some of the major causes of obstetric hemorrhage, and these will be discussed by our speakers.

### Placenta Praevia\*

E. M. Ransom, M.D. Minot, North Dakota

N reviewing the literature of the past several years on placenta praevia one is surprised at the great numon placenta praevia one is surprised to this sub-ber of articles which have been written on this subject. This is especially noteworthy when one considers the similarity of these articles and the fact that very little new material has been added to our knowledge of this serious complication of pregnancy. One valuable contribution has been made, however, and that is the keeping of statistics. It has been said that anything can be proved by statistics and there are those who discount the value of the statistics published about the hemorrhages of pregnancy. Yet, with all their inaccuracies and discrepancies, statistics are valuable because they reveal to us, to a greater degree than ever before, the results of various methods of treating the hemorrhages. Moreover, if we once begin the keeping of statistics we become more acutely conscious of our mistakes and are inspired to greater individual efforts to correct them.

With this in mind I wrote to a number of our group practicing obstetrics throughout the state, asking for local statistics kept by the hospitals in which the members practiced, and I wish to acknowledge my appreciation of the response which I received. I have compiled these statistics and shall present them during the course of this paper.

But first let us briefly review what is known to date about placenta praevia.

\*Read before the fall meeting of North Dakota Society of Obstetrics and Gynecology, at Grand Forks, November 18, 1944.

The etiology of the disease is still unknown, some investigators believe that multiparity is responsible for most of the cases, that disease of the endometrium which occurs as the result of infection following childbirth, so affects this membrane that proper changes for nidation of the impregnated ovum in its normal fundal location are prevented. Others believe that the formation of cotyledons on the decidua reflexa is responsible, while the most recent theory advanced is that of some hormonal disturbance as yet not understood.

This complication presents one important symptom, hemorrhage without pain. In a recent article 1 Wallace presented a series of cases to prove that placenta praevial hemorrhages are not always painless nor are the hemorrhages of ablatio always painful, but many men 2 disagree with him. In my own limited experience praevial hemorrhages have always been painless and from the very nature of the pathology it seems to me this should always be so, except in those rare instances of cervical obstruction which may prevent the blood from escaping from the os freely. Painless hemorrhage can occur from cervical erosions, polyps, carcinoma of the cervix or varicosities, but if the patient has been having proper antepartum care, the existence of any of these will have been discovered and careful examination under strict aseptic precautions will determine whether the bleeding is coming from any of these sources.

FO. DAK. MATERNAL MORTALLETT 1934 - 1943 States of deaths from Placenta Praevia and Raiss per 10,000 live births

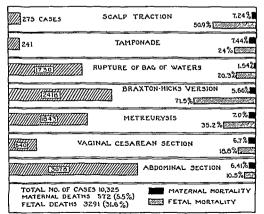
	Eumber of Da	aths	Rate
	Placenta Praevia (Death before Delivery)	Placenta Praevia (With Childbirth)	
1943	1	1	1.5
1942	•	1	0.7
1941	-	1	0.7
1940	ì	-	0.7
1939 1938 1937 1936 1935	2 3 2 1 3		1.5 Q 2.3 1.5 0.7 2.1
	Not reported separate	ely prior to 1940	

U. S. MATERIAL MORTALITY, 1940

Maternal Deaths		Rate per 10,000 live bir
Placenta Praevia (death before delivery)	22	0.09
Placenta Praevia (with childbirth)	230	0.97

The most reliable diagnostic procedure is a digital examination. This of course must be very carefully performed after proper preparation but it will definitely reveal to us not only whether we are dealing with a placenta praevia but also whether it is complete or incomplete. Opinions differ about the value of the cystogram for diagnosis of placenta praevia but I have found it quite valuable for centrally and even for some laterally placed placentas. A posterior placement probably will not show nor will a marginal, although Pentis and Tucker a claim to be able to diagnose a posterior placement by having the patient assume a semilateral position. If one can make a diagnosis by this method he can often decide as to what treatment he will follow without the hazard of a digital examination.

TABLE



Two outstanding changes in our methods of handling placenta praevia during the past few years have served to greatly reduce mortality from this terrifying complication of pregnancy. These are the use of blood transfusions and cesarean section. Of the two, blood transfusion has probably saved more mothers than cesarean section but, combined, they have cut the maternal mortality in half. It is now generally conceded that a complete praevia should be sectioned. There may be justification for sectioning certain of the lesser degrees of praevia as, for instance, in the presence of a rigid elongated cervix, but it is doubtful whether a rigid cervix is often found in placenta praevia. Holmes, through personal communications from a number of authorities, found not a single rigid cervix in 626 praevias.

The usual indications for cesarean section, tumors, disrths proportion, heart disease, etc., apply in all types of pla-

centa praevia.

We have largely confined cesarcan section to that type of praevia which completely covers the os and have usually treated lesser degrees by other methods. One of the simplest and best of these is rupture of the membranes. This allows the presenting part to descend and the placenta to retract with the changing cervix and lower uterine segment, thus greatly lessening the chance for a repetition of the hemorrhage. If the presenting part is a head it serves to tampon the placenta and labor pains are usually initiated if they have not already started. The additional use of a Willett forceps will control the hemorrhage until delivery takes place. Some men use small doses of pituitrin to encourage labor pains. After several cases of shock, some of them severe, we gave up the use of pituitrin in any obstetrical procedure several years ago and have since used pitocin.

If a breech is presenting, a leg should be brought down to act as a tampon. Other methods of controlling hemorrhage or of hastening delivery are the use of a

tamponade, the bag and Braxton-Hicks version. Accouchement forcé, Duhrssen's incisions and vaginal section are to be condemned.

Davis says <sup>7</sup> that vaginal tamponade has fallen into complete discard, and that Braxton-Hicks version and metruerysis are fast losing their popularity, but most writers do not go this far in reference to these procedures and some still feel that the last two are invaluable in certain cases of lateral and marginal placenta praevias. <sup>8,0</sup>

If tamponade is to be used, I believe it should be used as described by Jarcho in the American Journal of Surgery. 10 He uses, instead of gauze, several strips of cot-

#### Table of Mortalities in the Treatment of Placenta Praevia, (H. B. Benaron)

Like all statistics these should not be accepted at their fit solutions of surpours of the membranes has the lowest mortaley, but this is because only the midder cases, placents marginalis, are thus treated In Browne's 232 collected cases where exactly traction was used, the maternal death rate was only 3.5 per cent and the fetal mortality was 46.4 per cent.

MORTALITY OF PLACELTA PREVIA AS INFLUENCED BY THERAPEUSIS. "

Therapeutic Methoda		Materna	l Mortality	,	Fetal Mortality			
	Number	Died	Per Cent	Per Cent Morbidity	Number	Died	Per Cent	
Ruptured Membrane	2,070	37	1.8	4.8	1,958	436	22.2	
Spontaneous Birth	3,068	70	2,3	4.8	2,244	525	23.4	
Hydrostatic Dilators	4,464	263	5.9	16.2	3,113	1,542	49.5	
Hicks Version	10,660	686	6.4	23.2	8,213	5,523	67.2	
Cesarean Section	5,166	337	6.5	40.3	2,154	533	24.7	
Vaginal Tamponade	477	32	6.7		475	239	50.3	
Accouchement Force	291	71	24.4	22.6	282	133	47.2	
Totals	26,196	1,496	5.7		19,439	8,931	48.4	
Findley's Grand Total	47,828	3,454	7.2	•••••	27,047	14,427	53.4	

Holmes' Paper in the American Journal of Surgery. Adapted from Findley's analysis of 47,828 cases, with relative morbidity rates as reported by Irving.

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	Bo.		· humber	. Type		;		. Mor	tality	310	od Loss	•	•	
ROSPITAL		Report	· Previes	Complete	In- complete	TREATMENT		Mother	Baby	Hgb.	H.D.C.	Transfesion	GTAY.	Para.
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ton 15 cm. long, 2 cm, wide tied together with tape and wrung out of a mild antiseptic solution. These he packs firmly into the fornices. He claims that the effect of this packing is not only to stop the flow of blood but to make direct pressure on the great cervical ganglia of Frankenhauser and thereby initiate labor pains.

Holmes, too, while deprecating the use of the tampon, says that strips of gauze are inadequate for packing placenta praevia before delivery, and that sterile absorbent cotton soaked in approved antiseptic solution must be used.11

In the use of the bag most authorities agree that the intraovular insertion is safer, since it does not serve to strip the placenta still further from its attachment and does not permit the bag to come in contact with the uterine surface of the placenta, where infection is most likely to be introduced.

Braxton-Hicks version is difficult and statistically carries a rather high maternal and fetal mortality, but there are cases in which it seems to be the logical way of handling a partial praevia.

Of the advances made in the conduct of placenta pracvia, I wish again to stress the use of blood transfusion as being the most valuable. One of the very first things to be done when a case of placenta praevia of whatever type comes under our care is to get blood donors, several of them, have them matched and ready for use, and use them to replace any considerable amount of blood loss or to prepare for cesarean section. There is no real substitute for blood transfusion in placenta praevia.

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### Abrupto Placenta\*

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HIS term is used to denote the premature separation of the normally implanted placenta. To most of us, this is one of the obstetric headaches that is put in the class of transverse presentations, aftercoming hydrocephalic heads - all those things that we think of ever so often but immediately try to forget as soon as possible. Abruptio or ablatio placenta has a habit of showing up when least expected and then we quickly try to remember the substance of the last article in the Journal that produced so many happy results.

I have tried to cover the literature of the past seven years on the subject as thoroughly as possible and it seems that articles are appearing much less frequently the last few years than they did in 1937. There is a reasonable explanation for this, however. Practically every author gives toxemia as the most important etiological agent in producing this condition. Adequate prenatal care is lowering the incidence of toxemia in all well controlled clinics, and these are the clinics or medical centers that are producing the papers. Maybe the falling rate of toxemia is bringing on such a decrease in the incidence of abruptio that research men are losing their interest. This is entirely my own deduction and I have no figures to bear this out. In fact, there may not be a decrease in the incidence of abruptio, it may even be increasing. One's own limited experience in a comparatively rare complication is most deceiving. However, the few papers appearing in the recent literature have prompted me to make this deduction.

In abruptio placenta (other names are ablatio-premature separation, uterine apoplexy, couvelaire uterus, etc.), \*Read before the fall meeting of North Dakota Society of Ob-stetrics and Gynecology, at Grand Forks, November 18, 1944. †Dakota Clinic. the separation of the placenta may be complete or partial and this determines the seriousness of the complication. Bleeding always occurs when the placenta separates although there may be no external evidence of it. It is then called "concealed hemorrhage," and may be caused by adherent edges of the placenta, rupture of a hematoma into the amniotic sac, or a tightly fitting head in a firm engagement. When these conditions are present, the patient may exhibit all signs and symptoms of hemorrhage with no external bleeding visible. However, the bleeding is usually profuse enough to dissect its way down between the membranes and the uterine wall and show externally from the vagina. Both concealed and external bleeding may be present in some instances and consequently the amount of shock may be all out of proportion to the amount of blood lost. When concealed hemorrhage is present, and in many cases when both concealed and external hemorrhage are present, the force of the bleeding may cause interstitial hemorrhages in the uterine wall. This may prevent efficient contraction of the uterus after it is emptied either by cesarean section or from below.

The figures on premature separation of the placenta vary so much as to be almost worthless. Some authors place all degrees of separation in their statistics, others only the severe types. Williams gives an incidence of almost one in 150 pregnancies. Davis and McGee found that it occurred once in 770 of these. Cosgrove & Conway of Jersey City in 42,807 "live births" (?) found it occurred in 1 to 181, but their total fetal death rate is 49 per cent, so their figures do not help much. They had 236 cases, 148 mild and 88 severe. No mothers died in the mild group but four mothers died in the severe group. Fifty patients of the severe group had cesarean section with a mortality of 4 per cent. Thirty-eight patients had conservative treatment with a mortality of 5.26 per cent. These are 1941 figures.

Although we do not have the last word on the incidence of abruptio placenta, we do know that the severe type with large concealed hemorrhage and uterine muscle destruction is rare, and, we hope becoming rarer with better control of toxemias. Fortunately, minor degrees of separation occur much more frequently than the severe types. This is most likely to occur when the placenta is implanted a little low and that surface of the placenta which is implanted on the lower uterine segment where decidual development is poorest, may separate. External bleeding is usually moderate and early in these cases and general symptoms of hemorrhage may be minimal or entirely lacking. This hemorrhage is usually very moderate with no external manifestations and may not even be suspected until the placenta is examined after delivery.

In all cases of premature placental separation, however, a subplacental hematoma is formed and the resultant pathology, clinical picture and prognosis are all dependent on one of the following forms that it may assume:

- 1. It may be confined to the limits of the placenta.
- It may separate the membranes wholly from the uterine wall with varying degrees of separation of the placenta.
- The membranes may rupture with hemorrhage into the amniotic cavity.
- The membranes may separate down to the internal os with hemorrhage into the vagina.

In the first three varieties the hemorrhage is concealed while in the fourth it is external. In the last the prognosis is best because the condition is recognized earlier and also because the pressure is lessened and therefore less likely to produce damage to the uterine musculature.

The hemorrhage may rupture into the amniotic cavity or it may dissect its way through the uterine musculature and serosa and escape into the peritoneal cavity. In these cases the patient may exsanguinate herself without any external bleeding. These are the rare, serious cases that show the profound symptoms of shock and anxiety early.

The etiology of premature separation of the placenta is essentially unknown. There are cases which are purely traumatic but these are rare. Direct external trauma, traction on a short cord, injury through performance of version, uterine collapse after birth of the first twin and the improper use of pituitrin may produce traumatic premature separation of the placenta.

Structural defects as well as psychoneurotic causes have been pretty well discounted as etiological agents in producing this condition.

Because of the frequency of accompanying manifestations of toxemia in abruptio placenta, it would seem that some etiological connection exists. However, in fully 50 per cent of the cases, our present methods of detection do not uncover toxemic tendencies. It may be that there is some toxin elaborated in certain systemic diseases and in toxemia capable of producing premature separation of the placenta. The nearest approach to this has been made by Hoffauer. He has injected histamine into animals whose placental structure is similar to that of man, and produced the exact clinical and pathological picture of abruptio placenta.

The symptomatology is very variable. Undoubtedly the condition occurs in many cases of spontaneous, uncontrollable abortion. In many of these a careful examination of the placenta will show all the changes found in the more serious type occurring in the last two months of pregnancy.

The symptoms vary principally with the severity of the hemorrhage, and also according to whether the hemorrhage is external or concealed. The amount of blood which has escaped from the vagina must never be taken as a gauge of the amount lost to the maternal circulation.

The diagnostic signs are both fetal and maternal. If the fetal circulation is interrupted suddenly by massive placental separation, the sudden asphyxia will cause violent fetal movements for a short time followed by death. If the arrest of circulation is slow, the violent movements will be absent and the child gradually passes into death.

The maternal signs are of two types: (1) those referable to the blood lost, (2) those referable to the uterus itself.

In severe cases the signs of acute anemia are always present. The lips and mucus membranes are pale, the skin and extremities are cold, the pulse and respirations are accelerated. Blood counts will show a falling erythrocyte and hemoglobin estimation. A number of these cases show a high leukocyte count, and there seems to be some connection between an extremely high leucocyte count (say 40,000 or so) and uterine apoplexy. Frequent blood pressure determinations will show the rapidity of hemorrhage, but one must not forget that the attendant toxemic condition with its associated hypertension frequently complicates the picture.

Dizziness, syncope and shock are natural sequences, and are directly proportional to the amount and rapidity of the blood loss. All grades of nervous depression are common. It is very easy to misinterpret this nervous depression and assume that it is due to the common "nervous instability" so often found in pregnancy. If the signs of acute anemia are also present, however, this mistake should not be made.

As was mentioned before, in all cases of ablatio, there is a time when only the subplacental hematoma is formed. There may be an interval of hours to many days before any external signs of blood loss is manifested. If sufficient time elapses for coagulation to take place, the clot will eventually contract and there will be an extrusion of blood serum into the uterine cavity, which will be expelled from the vagina in the form of a pinkish discharge. Later the clots may be expelled and they are characteristically old and black. If the hemorrhage is continuing, free blood will be expelled.

Many of the old authors placed much stress upon the diagnostic value of the type of external bleeding. They contended that if the bleeding was systolic, that is if it occurred with uterine contractions, it was probably due

to abruptio placenta; if diastolic, occurring between uterine pains, it was more likely to be due to placenta previa. This sign is probably of only slight diagnostic significance.

The signs referable to the uterus are much more definite and concise.

The pain accompanying ablatio is in sharp contrast to the absolute absence of pain in placenta previa. The pain in ablatio may be only a localized discomfort or it may be the most agonizing possible. The afflicted woman may have the feeling that she is bursting. If the placenta is implanted anteriorly there may be a definite area of tenderness.

The distention of the uterus is entirely dependent upon the amount of blood remaining in the uterus. The patient is prone to notice and complain of this distention before it is observed by the obstetrician. When distention is present with other signs of ablatio it is important, but its absence is not.

The consistency of the uterus has been the cause of much controversy in the last few years. The late Dr. Williams gave prominent mention to the "board-like" rigidity of the uterus in cases of ablatio placenta. However, if one awaits the time to elicit this in all cases of ablatio, the diagnosis will certainly be unduly delayed. The rigidity of the uterus, or the tonus of the uterine musculature varies greatly in physiological pregnancy. The same is true in cases of ablatio placenta. Once labor has begun, the tone or rigidity of the uterine muscle is stepped up in normal pregnancy and palpation of the fetus is more difficult. This increase in muscle tone must be taken into account in the diagnosis of ablatio placenta.

In the diagnosis of ablatio placenta the following points must be kept in mind.

- The typical attack comes on with pain of varying degree.
- Syncope and nervous depression may cloud the picture.
- The anxiety may be out of all proportion to the evidences of anemia present.
- The pulse is accelerated in accordance with the amount of blood loss and shock.
- 5. The temperature is usually lowered.
- In toxic separation, the blood pressure may even be above normal, and in the Couvelaire type of ablatio it may be normal due to the associated toxemia.
- The patient may complain of a sense of distention, even to the point of "bursting."

The one outstanding condition which must be differentiated from acute ablatio with concealed hemorrhage is syncope. The presence of uterine pain, the history of previous attacks, and the absence of apprehension when the faintness is relieved, will help in making an accurate diagnosis.

The prognosis in ablatio placenta is not favorable. Under the very best of conditions, in large series of cases, the mortality in severe cases will be higher than 50 per cent for the infants and higher than 20 per cent for the mothers.

#### TREATMENT

First and foremost in the management of ablatio, as is the case in all hemorrhagic emergencies of pregnancy, a number of compatible blood donors should be secured. This should be done before any examination or preparation of the patient is done if the symptoms of shock are obvious.

In serious cases, at any stage of pregnancy or labor, the pregnancy must be terminated as soon as possible in the interest of both mother and the child. Common sense and judgment must be used rather than any fixed set of rules. The factors that must be taken into consideration, in the obstetrical management of ablatio placenta are the following:

The stage of labor (particularly the degree of dilatation of the cervix).

2. The parity and the efficiency of the uterine pains.

3. The stage of pregnancy or the viability of the fetus.

4. The dystocia present.

5. Infection, actual or potential.

 The skill, judgment and experience of the obstetrician.

In the actual treatment of ablatio placenta the following procedures are used:

1. Watchful expectancy. This type of treatment is only to be used in extremely mild cases. In other words those cases of separation in which blood loss has not complicated the picture, or in which bleeding has stopped, may be treated expectantly. However, a sudden occurrence of the fulminating type must always be kept in mind.

The use of rubber bags is rapidly falling into disrepute in recent years. The results following the insertion of a bag are uncertain. Many hours may elapse before sufficient irritability of the uterus is aroused to produce dilatation. Time is of the utmost importance in the treatment of severe cases, and one can not afford to gamble with his methods. The bag should be reserved to borderline cases where there is some doubt in the diagnosis between a marginal placenta previa and an abruptio placenta.

Carl Henry Davis, in his system of Gynecology and Obsternes, devotes some space to the advantages of manual dilatation in abruptio placenta. He contends that the acute anemia, the uterine distention, and other toxic factors predispose to relaxation of the cervix. His big argument, however, is that it is a time-saving procedure and in this we will have to agree as it is a much simpler process to prepare for manual dilatation than for cesarean section. Following the dilatation, he advocates the use of either forceps or version, whichever seems to be indicated. It seems, however, that the additional trauma to an already traumatized uterus, and the obstetric skill required to complete the procedure, contraindicates this as a routine measure.

In the great majority of cases, this catastrophe will befall the patients who are unprepared for delivery, the cervix uneffaced and undilated. In serious cases of this type, cesarean section at the earliest possible moment is the only alternative. In the choice of an analysis is time required for its administration is an impc.

tor in abruptio placenta. It would seem that caudal or spinal anesthesia is the ideal method to use in this condition. Both are being used much more in recent years as anesthetics for cesarean section and certainly the advantages to the infant, if viable, are obvious.

It may also be added that in most severe cases, progressive increase in size of the uterus with increasing pain and loss of the uterine ability to contract and relax, indicates an advancing process that is rapidly becoming serious. Even though these patients seemed to have been in normal labor previously, further delay in delivery is dangerous. In these patients the uterine wall may be so infiltrated by interstitial hemorrhage that in the majority of cases it will not contract even when emptied and oxytoxic drugs are administered both in the uterine wall and intravenously. In these cases the hemorrhage will continue and the patient will exsanguinate herself unless the uterus is amputated. The general appearance of the

uterus during cesarean section, its response to oxytoxic drugs, and the condition of the patient should determine whether the uterus should be amputated or not.

I would like to conclude this paper by quoting verbatim, Dr. DeLee in the 1936 Year Book of Obstetrics, in which he discusses an article on ablato placenta:

"There is such a thing as obstetric sagacity. One might call it intuition, and it is the better part of the foundation of the art of obstetrics. The other part is the science of obstetrics. Why, in two cases, which to the average man seem identical, the real obstetrician will deliver one by section and the other from below is not always clear. The decision is compounded of experience, scientific study of the case, the published experience of others, the environment, the patient, the executive ability of the one on whom the decision rests and only perhaps on only just because."

### Diagnosis and Treatment of Ectopic Pregnancy\*

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HE subject of "maternal deaths" is demanding, as it should, an ever increasing spotlight by physicians, mothers, and shall we add, the press. Recent compiled statistics reveal an ever lowering rate due to better pre-natal and obstetrical care combined with the advent of the sulfa drugs and penicillin. However, increasing in the percentage of deaths are those due to hemorrhage. Ectopic pregnancies almost always require treatment for hemorrhage, and therefore a discussion of ectopic pregnancy is timely.

Because a large majority of intra-abdominal hemorrhages caused by ectopic pregnancies are spectacular and dramatic in their onset, many cases have been collected,—single instances by different authors who have described the period of gestation, the position of implantation—interuterinely or intra-abdominally, etc. However, for our discussion I have chosen to define ectopic pregnancy as a pregnancy occurring outside of its normal area.

Cases of extra-uterine pregnancies were reported as early as the 11th century by Albucasis and Francis Rousetti, the diagnosis having been made after ulceration through the abdominal wall. In 1500 Jacob Nuper incised his wife's abdomen and recovered a large calcified fetus with full recovery of the patient. Reports of retained calcified fetuses from several to seventy-five years old are in the literature. However, one of the first abdominal sections to gain a living baby of ectopic implantation was reported by H. J. Shelton in the Journal O. B. Gyn., December 1913. The incidence reported by a number of authors including H. E. Miller of New Orleans and published in American Journal O. B. Gyn. in April 1940 is about .33 per cent. In a study of 865 cases occurring from 1924 to 1936 in the New Orleans

\*Read before the fall meeting of North Dakota Society of Obstetrics and Gynecology, at Grand Forks, November 18, 1944.

General Hospital, 80 per cent occurred in women between the ages of 17 and 33.

The etiology is usually mechanical obstruction of the fallopian tubes, either acquired or congenital. The remainder, under the head of "theory," are variably held to be due to disturbed transportation of the ovum or to the ovum's developing its capacity for implantation before it reaches the uterus.<sup>1</sup>

### SIGNS AND SYMPTOMS

Because of multiple pathological varieties and numerous courses of ectopic pregnancy, the symptoms are extremely variable and frequently baffling. The four most important and constant findings, however, are:

Pain which is either mild and diffuse if there is no bleeding or only slight oozing, sharp and agonizing if there has been a rupture with profuse hemorrhage.

Vaginal bleeding, the blood usually dark with no

tendency to clot.

Shock due to intra-abdominal hemorrhage or to visceral trauma from rupture.

Missed menstrual period with usual spotting, fainting, dizziness, or weakness following straining and an intuition of probable pregnancy.

Physical examination often reveals the genital signs of early pregnancy (Hegar's sign is absent) and in most instances the mass of the unruptured ectopic pregnancy is felt. If ruptured the usual hematocele in the culdesac is quite definite.

Ricci and Di Palma wrote in the diagnosis of ectopic

gestation-"accuracy does not prevail."

The Aschheim-Zondek or Friedman test is of value in the unruptured or early ruptured cases. Late diagnosis is usually made after the gestation has gone well beyond nine months, usually with the x-ray the deciding factor.

Curettage reveals intact decidual tissue without chorionic if rapid, rational preoperative and operative measures are

The diagnosis of the dramatic type of ruptured tubal pregnancy should be readily made and should not necessitate culdesac puncture, curettage, and Friedman tests.

#### TREATMENT

This is distinctly surgical and imperative when accompanied by severe abdominal hemorrhage. Treating shock, typing blood, and extra diagnostic procedures add only to the mortality rate. This conception is not held by all who report cases but a review of the literature on the subject-there are volumes-indicates quite clearly that treating the shock should be instituted only while the operating room is being prepared and during operation, that it should be painstakingly done in the realization that bleeding has at times ceased because of the lowered blood pressure and increasing the blood pressure adds only to continued or renewed bleeding.

Johonnes Thies of Leipsig is accredited with first using auto-transfusion in these cases no earlier than 1914. It may be kept in mind, but I can see no especial advantage in it by prolonging operation.

Let me again emphasize that the treatment of ectopic pregnancy is distinctly surgical.

The various techniques need not be discussed. The important thing is to get into the abdomen and out of it again with the least amount of manipulation and trauma.

The prognosis is excellent and the results are dramatic

Warmth, morphine sulphate, and marked elevation of the foot of the bed give very noticeable improvement. At operation the patient should be kept in extreme Trendelenburg. Do not lose a drop of intraperitoneal blood unnecessarily. Locate the bleeding point and re-move the tube with careful haste. If the fetus has aborted and is not easily found, do not prolong operation by seeking for it. Clots do not have to be removed. Close the abdomen without drains.

In advanced pregnancies,2 if the fetus has died, wait two weeks or more until thrombosis of the placental vessels has taken place. In the event of difficulty in removing the placenta, trim off the membranes, ligate bleeding portions, and leave the placenta. Do not pack or drain. Packing will be unnecessary if the operator has not caused bleeding. In the event of infection, marsupialization of the membranes and packing of the cavity seem to give best results.

Arguments and opinions vary as to the possibility of delivery of a viable fetus but the death rate from watchful waiting strongly suggests that surgery is indicated as soon as the diagnosis of ectopic pregnancy is made, rather than waiting for perforation and severe hemorrhage and infection to have their turn,

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### Treatment of Deafness, Ear-Noises and Dizziness by Hypothermic Therapy

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ERHAPS no symptoms cause more aggravation than those of eighth nerve irritation - namely, deafness, ear-noises, and dizziness occurring singly or, even worse, in unpleasant combinations. Except by the removal of the cause of the disturbances if and after such cause be found, the treatment of these symptoms has been for the most part slow and unsatisfactory. A rapid safe means for symptomatic relief which may at times prove to be lasting, is therefore worthy of consideration.

#### HYPOTHERMIC VERSUS HYPERTHERMIC THERAPY

Before describing the application of hypothermic therapy used in the treatment of eighth nerve disturbances, it might be well to compare it with hyperthermic therapy as a method of treatment of ear conditions in general. Hyperthermic therapy has been used in all forms, i. e., dry heat, wet heat, and electrically induced heat, for many years and is mentioned only because of the marked difference in its actions and the results to be expected. Thus, when heat is applied, particularly when the temperature goes over 108° F., blood vessels become dilated, the blood flow is increased, and there is often a mild inflammatory reaction added to the simple thermal effect. The increased flow of blood increases the thermal conductivity of the tissues and distributes the heat over a large area, often increasing the temperature of the entire body. The local area treated even after one hour of heating at a temperature above 108° F. may not rise above four degrees at the junction of the dermis and subcutaneous tissue (2 mm. deep) as tested by a thermocouple. In contrast, application of cold to a similar body area, particularly when the temperature is 56° F. or below, causes a marked vasoconstriction with reduced circulation and the deeper tissues take on the temperature of the surface within a relatively short time without greatly affecting the temperature of the rest of the body. Thus, if the cold application at 56° F. is applied to a skin surface for only one-half hour, the thermocouple placed twice as deeply (4 mm.) below the surface, registers a fall often of as much as 20° F. and the general temperature of the rest of the body is not affected. Thus, using hypothermic therapy a profound lowering of temperature over a relatively small area such as over the petrous portion of the temporal bone containing the labyrinth and the endings of the eighth nerve, may be attained relatively rapidly without producing noticeable general effects, a result impossible with the use of hyperthermic therapy. Furthermore, application of heat causes an increased rate of metabolism while cold decreases the rate. Therefore, application of heat over areas of relatively poor blood supply such as the petrous portion of the relatively ischemic bone might endanger vital nerve cells through the inability of the blood vessels to dilate sufficiently to take care of the increased heat and metabolism and to supply the necessary blood for cooling purposes and fuel. This is particularly true when temperatures in excess of 113° F. are used as in diathermy and inductotherm. In contrast, when cold applications below 59° F. (15° C.) are used, the primary vasoconstriction is followed by vasodilatation. The metabolic rate is reduced by the cold and the blood supply is markedly increased a very desirable condition in ischemic conditions. Benefit may also result from the formation and exchange of tissue fluids, such as endolymph in the labyrinth. The interchange of fluid depends on the normal physical balance between the hydrostatic pressure of the blood in the capillaries and the osmotic pressure of the protein colloids, which, unable themselves to pass through the capillary walls, exert an attraction for watery solutions of the diffusable substances. Thus, when an increased flow of blood and pressure in the capillaries can be obtained without increasing metabolism or endangering tissue, as is possible by hypothermic therapy, increased fluid transfer to and from the endolymph is made possible.

### CLASSIFICATION OF DEAFNESS, EAR-NOISES AND DIZZINESS

For the purpose of therapy we may classify these symptoms occurring singly or in combination as primary and secondary. The primary group includes affections of the terminal portion of the eighth nerve for which no known therapy has proved satisfactory. The secondary group includes all affections of the eighth nerve for which definite and often simple easily removable causes may be found. Among the more common conditions of the secondary group are: Obstructions of the external auditory canal, such as by wax, epidermal masses, granulations, and tumors; interference with ventilation of the tympanic cavity due to obstructions of the eustachian tube, or accumulations of mucus, pus, and masses of epidermis in the tympanic cavity, such as in otitis media; general causes such as septicemia, uremia, drug poisoning (due to quinine, alcohol, arsenic, tobacco, etc.), allergy, blood dyscrasias (such as pernicious anemia, syphilis, and leukemia), hemicrania, reflex spinal and cranial neuritis (such as tic douloureux and facial nerve neuritis), brain tumor, cerebral vascular lesions, and general circulatory failure.

### INDICATIONS FOR HYPOTHERMIC THERAPY

Obviously in the primary group where no satisfactory therapy is known, a therapy which is simple and quick to administer and often gives rapid symptomatic relief is definitely indicated. This is particularly true in otosclerosis and Meniere's disease. When a definite and easily removable cause is found as in some instances of the secondary group, then, certainly, the removal of such cause is the immediate treatment of choice. However, should such treatment fail to relieve due to damage already inflicted by such cause, or should there be an expected prolonged interval between removal of the cause and symptomatic relief, hypothermic therapy may prove a valuable adjuvant measure. The use of hypothermic therapy has proved very beneficial to a large variety of patients suffering from a variety of forms of eighth nerve disturbance where other therapy including hyperthermic therapy (infra-red, inductotherm, and moist heat), galvanism, pneumomassage, chemotherapy, and surgery have failed.

### Physiological Basis for Hypothermic Therapy

Hypothermic therapy is based upon three well-known and proven physiological phenomena: 1) the phenomenon of paracusis Willisii, i. e., the well-known improvement in hearing noted by sufferers of otosclerosis in the presence of loud noises such as experienced when riding in trains, in the presence of loud music, or when working in factories; 2) the marked stimulating effect of cold water run into the external ear as induced by a nystagmus due to stimulation of the vestibular division of the eighth nerve; 3) the proven fact that interference with the circulation of the labyrinth will cause deafness, headnoises and dizziness, varying in degree with the extent of the anemia induced. The phenomenon of paracusis Willisii has been explained by Lowenberg and Urbanschitach as an increased sensitivity of the acoustic nerve brought about by a general concussion or vibratory stimulation. It therefore occurred to me that if similar stimulation could be induced by other means, the phenomenon of a similar paracusis Willisii should be evidenced. This was actually found to be the case in a large series of cases of deafness and tinnitis, in which rapid lowering of the temperature of the skin and underlying bone over the endings of the eighth nerve was produced by hypothermic therapy. The head-noises diminished and acuteness of hearing was greatly increased. The reason for using cold to stimulate the eighth nerve was the wellknown sensitivity of the vestibular division of the eighth nerve to cold, a sensitivity also found to be present in the cochlear division. Furthermore, the application of cold below 59° F. to a body area has been proven to cause vasoconstriction followed by vasodilatation and increased blood supply. In view of the pathology known to be existent particularly in otosclerosis, some lasting relief might be expected following the secondary increased blood supply to the labyrinthine capsule. Furthermore, since the symptomatology of deafness, headnoises, and dizziness in general follows anemia of the nerve endings of the eighth nerve, when the blood supply is increased, such symptomatology might reasonably be expected to be reversed.

### ETIOLOGY OF OTOSCLEROSIS

According to Shambaugh, otosclerosis is responsible for 45 per cent of all adult deafness and for that reason the pathology involved is of particular interest. Otosclerosis June, 1945 221

is a primary disease of the labyrinthine capsule characterized by a spongioid transformation of bone which extends into the fossula fenestrae vestibuli and envelops the foot plate of the stapes and advances to the cochlea. There is evidence that this is a degenerative process secondary to an interference with circulation, in which there is a hyperostotic porotic focus with sharp lines of demarcation. There is no cellular evidence of neoplasm or inflammation, the capsule undergoes degeneration and resorption, and into the resorption spaces the fibrogenic marrow grows. Young fibrogenic marrow is calcified into reticular bone and the focus extends. The process statts in the enchandral layer but may involve the periosteal bone and periosteum as well as the endosteal bone and endosteum. The eighth nerve endings are deprived of their blood supply as the condition progresses and the symptoms develop in the same manner as can be demonstrated more rapidly by experimentally interfering with the blood supply of the eighth nerve. Thus, the first interference with the blood supply of the cochlear division of the eighth nerve will bring about loss of hearing of low tones and sensory irritation evidenced by head-noises, followed by complete loss of hearing as the condition progresses. Thus, also, there may be some loss of equilibrium and dizziness when the vestibular division of the eighth nerve becomes deficient in blood supply followed by nausea and vomiting if the condition progresses. It would seem, therefore, that by teversing the pathology of decreased blood supply to the labyrinthine capsule by hypothermic stimulation, definite benefit might be expected. Such benefit, in fact, is found to be in evidence in a large number of patients so treated. The phenomenon of paracusis Willisii which is so typical in early otosclerosis can be duplicated by hypothermic therapy by using cold stimulation to the eighth nerve instead of vibratory stimulation.

#### ETIOLOGY OF MENIERE'S DISEASE

This is a relatively rare affection of the labyrinth due to disturbed pressure of endolymph therein. It may be caused by vascular disease, acute or chronic, or by infectious purulent disease. It is characterized symptomatically by sudden onset of vertigo, tinnitus, nausea, nystagmus, and progressive deafness. The symptoms are brought on by disturbance of pressure (usually increased) in the labyrinth interfering with the blood and lymph supply of the eighth nerve endings. The condition may be acute, followed by death, or may be milder in character followed by severe dizziness, loud head-noises, and loss of hearing. The only prompt relief that has been obtained to date has been relief of dizziness by severing the vestibular division of the eighth nerve or by severing both divisions of this nerve, bringing about loss of head-noises, to be sure, but total deafness as well. The medical therapy for Meniere's disease has proven unsatisfactory and the patients have been most miserable for prolonged periods of time. However, Dr. M. Atkinson, of New York, claims to have had some success in the treatment of Meniere's syndrome by the use of histamine and vasodilator drugs for the possible dual mechanism that apparently produces the syndrome. Patients sensitive to histamine whom he classifies as the vasodilator type are desensitized and the group not sensitive he treats with vasodilator drugs, particularly nicotinic acid. He bases this therapy on the theory that Meniere's syndrome is due to vasoconstriction or vasodilatation of the capillaries of the stria vascularis with disturbed permeability of the thin walls and consequent production of endolymph with resultant disturbed pressure and function in the cochlea and vestibule. I have found that Meniere's syndrome has frequently responded very favorably to hypothermic therapy in a single treatment used alone or as an adjunct to medical therapy particularly as outlined by Dr. Miles Alvissop.

#### ILLUSTRATIVE CASES OF OTOSCLEROSIS TREATED

Case 2. Miss A. A., age 58, music teacher, seen first March 17, 1944, complaining of loss of hearing that had come on gradually during the past five years, accompanied by a peculiar buzzing noise in her ears. Her mother had been similarly affected at about the same age and the condition had progressed to total deafness. She had been under treatment by a number of otologists, one of whom had given her pneumomassage in the external auditory canal, potassium iodide by mouth, and several forms of electrotherapy. She had received no relief. Physical and clinical examination of the patient revealed nothing abnormal except a marked scoliosis which was thought to have no bearing on the condition. The earfindings showed a normal tympanic membrane, the eustachian tube permeable to catheterization, Renne's test to be normal, and the low toness to be relatively inaudible with good perception of high tones. The patient was thought to be suffering from otosclerosis and given hypothermic therapy on the following dates: March 17, 24, 31, April 11, May 1, 4, 8, 11, 17, June 12, and July 1, 1944. She felt so much improved that she decided to discontinue treatments for a few months. Her heating for low sounds had returned and she was able to converse with people whom she formerly could not hear. The ear-noises had disappeared. She returned for treatment October 25, November 11, and December 20, 1944, at which time she stated her hearing continued good.

Cett 3. Mt. P M., age 44, came to see me April 19, 1944, complaining of a loud humming noise in his ears and deafness. He was wearing an electric hearing device because he was a salesman and was dependent on his hearing to conduct his business. Physical and clinical examination revealed no abnormal findings. Examination of the ears revealed the tympanic membrane to be normal, the low tones to be relatively inaudible, with perception much better for high tones. The patient was chought to be suffering from otoselerous and given hypothermic therapy on the following dates: April 19, 25, May 2, 9, 16, 1944. At this time the patient was able to dispense with his hearing device but he still had some sight ear-noises and some difficulty in hearing low tones. Treatments were repeated May 31, June 6, 13, 20, 27, July 2, 18, August 1, 8, 15, September 12, October 10, and December 3, 1944. When last in he stated he no longer had ear-noises and was able to carry on ordinary conversation without any difficulty.

### ILLUSTRATIVE CASE OF DEAFNESS FOLLOWING CHRONIC OTITIS MEDIA

Miss S. P., age 28, clerk, came to see me after having consulted numerous ear specialists over a period of ten years following an acute purulent otitis media. The discharge from the ears had ceased a number of years previously, but the hearing had failed to improve despite catheterization of the eustachian tube and inflation, pneumomassage in the external auditory canal, deep heat electrotherapy, galvanism, potassium iodide by mouth, and various forms of other medications. Examination showed no unusual physical or clinical findings. Examination of the ear revealed both tympanic membranes to be essentially normal, eustachiun tube permeable to catheterization, Renne's test to be normal, and low tones to be relatively inaudible with fair reception of high tones. The patient was thought to be suffering from nerve deafness possibly due to injury of the eighth nerve cochlear nerve endings from a purulent infection, followed by fibrosis. She was treated July 10, 17, 24, 31, August 7, September 11, 18, 25, October 9, 16, 26, November 16 and 24, 1944. Over this period of time the hearing gradually was restored for low tones and a disagreeable tinnitus of which she had been complaining entirely disappeared.

### ILLUSTRATIVE CASES OF MENIERE'S DISEASE

Case 1. Mrs. R. M., age 37, clerk, came in with a history of running ears for eighteen years, followed by dizzy spells for fourteen years, accompanied by unconscious attacks, for three years, and loss of coordination and sense of direction for the same length of time. She had been under treatment by a number of otologists during this period, who had been successful in curing her running ears, but had been unable to give her any relief for noises in her ears and the marked loss of hearing. She was examined by me on September 9, 1944, at which time her physical and clinical findings were essentially normal. Examination of the ears revealed normal tympanic membranes, the eustachian tube to be permeable to catheterization, Renne's tests to be normal, the low tones to be inaudible, but the perception for high tones to be good. Change of position of the head caused marked nystagmus and quick change in position of the head was followed by dizziness resulting in temporary unconsciousness. Treatments using hypothermic therapy were instituted September 18, 21, 30, October 10, 14 and 21, 1944. At this time she no longer had any unconscious attacks, the nystagmus had disappeared, and she was able to bend over and straighten as rapidly as she pleased with no discomfort. Her hearing was markedly improved for low tones, and the head-noises were very markedly lessened. She was able to resume work that had formerly been impossible for her to do. She was treated again October 28, November 3, 11, 18, and December 4. At this time she seemed to be in relatively good health and complained very little of any symptoms pertaining to eighth nerve irritation.

Case 2. Mrs. C. S., age 32, came in complaining of dizzy spells, nausea, head-noises, loss of hearing and vomiting on rapid change of position. She stated she had to stay in bed until noon when she was a child, owing to severe dizziness. She had been under treatment for the condition since childhood and, when examined, claimed that she had received relatively little relief. Examination on December 1, 1944, showed essentially normal physical and clinical findings. The tympanic membranes appeared normal, eustachian tube permeable to catheterization, Renne's test normal, the low tones relatively inaudible, and good perception of high tones. The condition was thought to be a form of Meniere's disease and treatment by hypothermic ther-'apy was instituted on the following dates: December 1, 9, 15, 24, 30, 1944, and January 4, 11, 18, 26, and February 7, 1945. The patient noted marked relief from dizziness after the first treatment and has had no nausea or vomiting after the second treatment. After the January 4, 1945, treatment she stated that the head-noises were very much lessened and she felt she could hear her associates better. On February 7, 1945, she stated her only unpleasant symptom was slight dizziness when turning quickly on her right side when lying down.

#### Technic of Hypothermic Therapy

Inasmuch as a search of the medical literature and a study of the Quarterly Index Medicus shows no therapy

that in any way resembles my form of hypothermic means for treating disturbances of function of the eighth nerve, I shall briefly outline the instruments needed and their method of employment.

The only instruments required are those for testing hearing, tuning forks, and nasal catheter for testing the patency of the eustachian tube and an otoscope for examining the tympanum (ear drum) and the external auditory canal. An audiometer with comparative audiographs may be used to note comparative improvement over a period of time. Such were used by the author in certain instances. After thoroughly testing the ears to remove all possible etiological factors which will enhance return to normal hearing, a tube of ethyl chloride is obtained and the skin surface posterior to the external ear over the vestibular petrous portion and mastoid portion of the temporal bone is sprayed until it blanches. The skin is allowed to thaw out about one-half to one minute when the area is warmed by the hand of the operator. The procedure is repeated two or three times over each ear area. In thin-skinned individuals it is advisable to warm the skin with the hand immediately after it blanches, to prevent frost-bite. The treatment is repeated once or twice per week for a period of six to twelve treatments. If improvement is noted, the treatments are continued for a period until no further improvement is necessary. The treatments may be repeated at monthly intervals thereafter from three to six months to insure that the condition will be relatively permanent. This therapy is not presented as a panacea for all forms of eighth nerve irritation, but has been beneficial in more than 70 per cent of cases in which it has been tried in the Quisling Clinic at Madison, Wisconsin, over a period of two years.

#### SUMMARY

- 1. A method of treatment of otosclerosis, Meniere's disease, as well as other forms of eighth nerve disturbance due to disturbed blood supply and/or pressure of endolymph in the labyrinth, has been described.
- 2. Several illustrative cases of otosclerosis and Meniere's disease have been reviewed in which beneficial results have been noted, as well as a case of eighth nerve deafness due to an old purulent otitis media.
- 3. Essentially the treatment consists of freezing the skin area over the mastoid and petrous portions of the temporal bone by an ethyl chloride spray for a short period of time at intervals of three to seven days over a period of at least two months.
- 4. Hypothermic therapy was based on the findings: 1) that the phenomenon of paracusis Willisii could be induced by cold as well as vibratory means, 2) that there was marked sensitivity of the cochlear division as well as the vestibular division of the eighth nerve to cold, and 3) that decreased blood supply to the labyrinthine capsule will cause deafness, head-noises and dizzi-
- 5. The mechanism of hypothermic therapy appears to be an increase of the blood supply of the labyrinth and a varying of the pressure of the endolymph, with a resulting beneficial ex-change of tissue fluids to the eighth nerve endings.

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## Low Back Pain in the Army Specialized Training Program\*

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N an examination to locate the source of low back pain, it is well to bear in mind the anatomical classification. Starting with the superficial structures, the focus of the trouble may lie in: (1) the soft tissues of skin, fascia, muscle or ligaments; (2) the skeletal system; (3) spinal cord and nerves; (4) abdominal organs; (5) most deeply in the mind of psychoneurotics.

You are well acquainted with the ordinary lumbosacral sprain which is by far the greatest cause of low back pain. Other soft tissue lesions to consider are myofasciitis, fibroma, lipoma, and herpes zoster. Infections and tumors of the spinal cord and nerves may produce severe low back pain. Herniation of the nucleus pulposus with irritation of the spinal nerve is now a well known syndrome. Intra-abdominally, the lesion may lie in the gastrointestinal tract, genital, or urinary organs, and by referred pain mechanisms localize the pain in the lumbosacral region. The most frequent of these conditions are intestinal adhesions, retroversion of the uterus, pyelitis, prostatic infections and tumors.

When we are satisfied that the trouble lies in the skeletal system, it is convenient to change from the anatomical to the etiological classification. This will include:

(1) chronic arthritis of the spine; (2) chronic bone infections, such as tuberculosis, osteomyelitis, Charcot spine, typhoid spine, brucellosis, and fungus infections;

(3) old fractures with traumatic arthritis; (4) vertebral tumors as benign osteoma or hemangioma, and malignant sarcoma or metastatic carcinoma; (5) congenital anomalies.

Next to lumbosacral sprain, the most common causes of low back pain in A.S.T.P. students were among the congenital anomalies. It was not unusual to find several different types of anomalous structure in one patient.

Spina bifida occulta has been demonstrated in 5 to 6 per cent of all spines and was the most frequent abnormality among our cases.

Case 1. B. W. is a known psychoneurotic who also began to complain of low back pain. Examination revealed a tall, slender individual with tenderness localized at the lumbosactal joint. On x-ray are seen a large spina bifida of the first sacral vertebra, and unstable lumbosactal facets.

Variations in size and plane of the lumbosacral articular facets are common. This produces a mechanical weakness that is a frequent basis for back sprain.

Case 2. P. K. W. worked five months in a factory lifting heavy truck parts and experiencing low back pain. His trouble persisted in training camp and at the university. Examination demonstrated only tenderness at the lumbosacral joint, but x-ray revealed a large spina bifida,

\*Presented at the Annual Meeting of the American Student Health Association, March 15-16, 1944, Cincinnau, Ohio. 1 Instructor in Orthopedic Surgery, University of Gincinnati School of Medicine. and small, unstable articular facets at the lumbosacral junction. He was partially relieved with a supportive belt. These two patients were referred to an Army General Hospital and recommended for reclassification to limited service.

Elongation of the transverse process of the fifth lumbar vertebra with impingement and friction against the slium occurred in two students.

Case 3. L. L. complained of low back pain intermittently for four months. Examination revealed tenderness in the midline at the fifth lumbar vertebra, and positive lumbosacral tests. In addition to spina bifida at the first sacral and unstable lumbosacral facets, x-ray revealed elongation of the fifth lumbar transverse process on the left side with impingement against the illum.

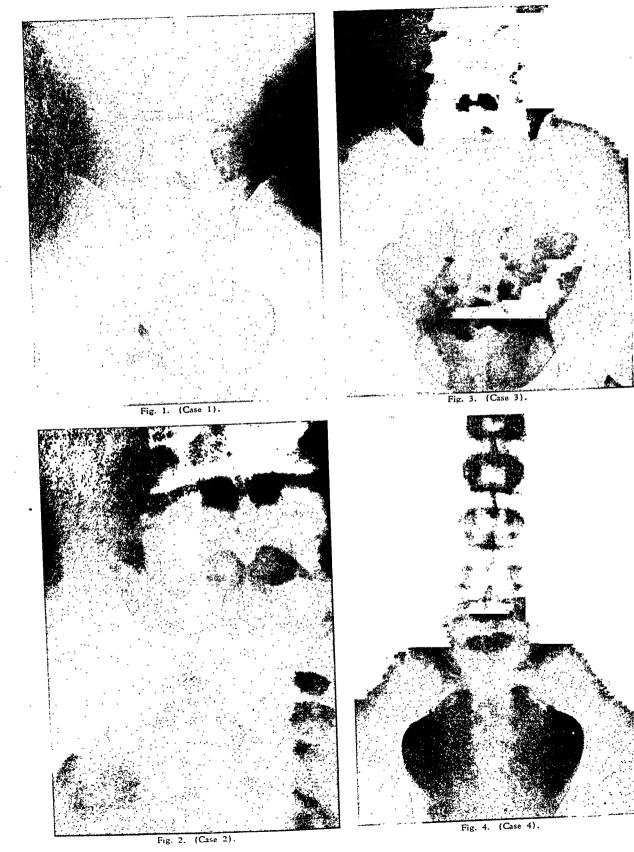
Variations from the normal number of five lumbar and five sacral vertebrae were often encountered. In many cases the first sacral was separated from the other sacral vertebrae and assumed the characteristics of a lum bar vertebrae. Conversely, the last lumbar vertebra may become fused with the sacrum. All gradations from partial to total transition are seen at the lumbosacral junction. Naturally the muscular and ligamentous structures are also anomalous and low back pain results from chronic strain.

Case 4. E. L. experienced low back pain after calisthenics. The patient moved very cautiously with spine tilted to the right side and splinted by spastic lumbar muscles. Tenderness was localized at the lumbosacral joint. Straight leg raising and Lasègue signs were bilaterally positive; reflexes normal. X-ray showed the first sacral segment almost completely converted to lumbar type, unstable articular facets and spina bifida of the second sacral. The student was taped with adhesive and excused from activities for one week, at the end of which time he had obtained complete relief and returned to duty.

Case 5. R. M. noted onset of low back pain after induction into the army. This pain was intermittent and aggravated by exercise. He was relieved from activities and given diathermy treatments without benefit. X-rays then exposed transition of the fifth lumbar vertebra into fusion with the sacrum. A lumbosacral belt afforded complete relief from pain and restored the student to full duty.

Spondylolisthesis is derived from Greek terms meaning a slipped vertebra. It denotes bilateral congenital dissolution near the pedicles and anterior displacement of the vertebral body.

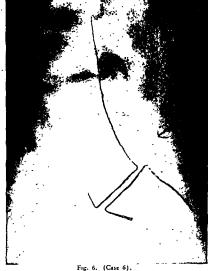
Case 6. D. S., an aviation student, had low back pain for six months, particularly noted upon turning flips in an airplane. He previously had been subjected to manipulations by an osteopath without benefit. X-ray revealed bilateral bone defects near the pedicles of the fifth



JUNE, 1945



Fig. 5. (Case 5).



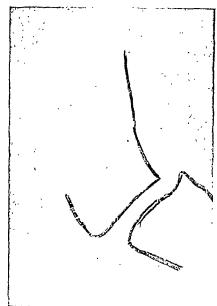


Fig 7. (Case 7).

lumbar vertebra, with slight anterior slipping of the vertebral column.

Case 7. O. S. experienced low back pain for two years. He had noticed a depression in the midline of the lumbosacral region and this area was moderately tender. Forward bending relieved the pain, whereas extension of the spine aggravated it. X-ray showed a gross forward displacement of the lumbar spine on sacrum. These two students were transferred to an Army General Hospital with recommendations for spine fusion operations.

Conservative treatment will suffice for 80 to 90 per cent of cases of low back pain, while the remainder require operative measures. The acute sprain requires rest in an orthopedic bed, later to be given heat, massage and back exercise. The subacute case may need adhesive tape or lumbosacral support. Manipulation of the back under general anesthesia to break up adhesions, followed by immobilization in a plaster cast is sometimes indicated.

Chronic low back pain, not responding to conservative therapy is often based on lumbosacral anomalies. In several cases we have recommended limited duty status. When an elongated transverse process causes persistent low back pain, resection of the process is indicated. Pain from other congenital defects will be relieved by spine fusion. It requires six to nine months following spine fusion before a soldier is again ready for general military duty.

### Spurious Fitness by the Endurance Test

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NQUESTIONABLY the endurance test developed by Brouha<sup>1</sup> and his colleagues has at last provided a technic most suitable for mass testing. Moreover, a man can test himself, since he can easily learn to count his own pulse. A whole gym class can test itself in a single hour period, one-half counting the pulse for the other half, then turn about. If such a procedure is widely pursued, it will soon dispel much of the myth that has accumulated about tests of physical fitness. There is no difficulty in counting one's pulse for a 30 second period with an accuracy of 1 per cent, so the score, which is 100 times the ratio of the number of ascents to the sum of three such counts, should reproduce to better than 2 per cent. Therefore scores can differ by more than a unit or two only because of real variations in the man himself, whatever their cause. One of us has accumulated over 70 tests on himself over a period of fifteen months. In the process we have run upon an interesting instance of an increase in score when physically least fit.

After eight preliminary tests over a period of five months, a series of tests was commenced under standard conditions every possible working day; but after twentythree days, and 13 tests, they were interrupted by a mild attack of influenza. Ten days later, when the tests were resumed, the score had risen from a median of 66 before the attack to 83 after, contrary to expectation. In fact,

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1L. Brouha: The Step Test: a Simple Method of Measuring Physical Fitness for Muscular Work in Young Men, Research Quarterly, Am. Assn. Health, Phys. Ed. & Rec. 14:31-35, 1943.—J. R. Gallagher & L. Brouha: A Simple Method of Testing the Physical Fitness of Boys, same, pp. 23-30.—Harriet L. Clarke: A Functional Physical Fitness Test for College Women, J. Health & Phys. Ed. 14:358-9, 394-5, 1943.

the last tests before gave 66, 60, 52, showing the approach of the infection while the postinfluenza tests gave 83, 73, 62, 71, 66, 67, 65, etc. The reason for this was quite apparent, namely, pairs of slow beats, the result of powerful vagal stimuli, beginning about a minute after the exhausting exercise, and lasting for over a minute. Indeed, a continuous electrocardiogram revealed eight sino-auricular blocks between 1 and 11/2 minutes, eight in the next half-minute, four in the next, and none thereafter. A sample pair is shown in figure 1.

Now athletes usually have strong vagus tone, which explains their slow pulse, and so vagaries in the pulse score for the endurance test can be expected. For every slowing of the pulse lowers the count and raises the score. But while the normal effect of training is thus to raise the score, not every increase can be considered an improvement. Interpretation must be tentative and cautious.

Another example of the limitations of the pulse score was provided by the captain of the swimming team. His median score (5 tests) was 112, low 109, high 126. There was nothing in his athletic performance to explain the increase of 17 in score. His blood pressure responses, however, seemed to provide the answer, for they were best when his score was worst, and vice versa. Thus, with pulse score 109, his pressures immediately after exercise were 160/60, while they were 222/40 when his pulse score was 126. Another swimmer showed a pulse score of 112 under basal conditions, just out of bed in the morning. This was 21 above his previous test, non-basal, with no great difference in the blood pressure responses. Evidently one must pay attention to all the circumstances. Under the most favorable conditions the median deviation of individual tests from the median score for the man is better than 4 per cent. For mass and self-testing

Table 1 Q-T Interval Before and After the Endurance Test

Subject No.	Age (years)	Score	Exhausting Exercise	C = R⋅R	Q.T	0.7	1	k	3	10
1	54	57	Before 3/4 min. After 10 min. After	1.38 .46 .85	.44 .29 .38	.377 .400 .394	.376 .388 .400	.367 .354 .372	.359 .329 .358	.319 .249 .294
2	19	. 80	Before 1 min. After	.64 .40	.32 .28	.376 .417	.368 .401	.346 .347	.329 .331	.263 .244
3	19	112	Before 4 min. After	1.09	.41	.385 .394	.381 .388	.369 .368	.359 .352	.310 .290
4	20	106	Before 11/2 min. After	.92 .52	.40 .33	.407 .428	.397 .416	.381 .385	.368 <b>.</b> .361	.312 .279
5	19	93	Before 3/4 min, After	.88	.36 .30	.365 .414	.363 .401	.348 .366	.336 .341	.283 .258
	Average I	11 values) Deviation (% ge Deviation	(from individual med	ians)		.394 3.9 3.7	.388 3.3 3.1	.367 3.1 1.0	.352 3.5 1.3	.283 7.5 6.2
6	45	83	23/4 min. After 12 min. After	.50 .58	.31	.410 .406	.398 .396	.367 .370	.343 .349	.263 .275

June, 1945 · 227

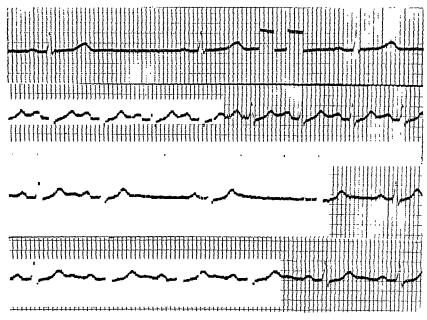


Fig. 1.

Top electrocardingtam: At rest, exclumbent, before exercise Rate regular Second ecg. 34 mm after 73 ascents [18 inch step) in 150 seconds. Rate regular. Third ecg t 1 min. 20 sec after exercise Bight SA blocks per munite, in pairs Bottom ecg. 23½ min. after exercise. Rate regular. (Alt four ser Lead II)

this score is about all that is practicable, but for a complete picture both the blood pressure and electrocardiographic responses should be added.

Incidentally, we have found no evidence that there is any systematic change in the repolarization process in heart muscle after this exhausting exercise in healthy men. For the Q-T interval of the electrocardiogram fits Ashman's<sup>2</sup> empirical formula (Q-T)=367 log (10c+2), both before and after exercise, as shown in table 1. C is the cycle length (R-R) in seconds. One must be cautious not to ascribe to age or to exercise, etc., changes in K which may be due really to a wrong choice of k.

The top row for each man in the table gives individual median values before exercise, and the rows under it, those after exercise. Apparently, each man has his own individual characteristic K, which is slightly different from that of the others. One k, however, for all five <sup>2</sup>R Athman: The Normal Duranon of the Q-T Interval, Proc. Soc. Exp Biol & Med. 40.170. 1939 produces such constancy in the K for each man that it can hardly be accidental. In the two bottom rows are added results after the exercise on a physical educator 45 years of age who accomplished the 150 ascents in 5 minutes (18 inch step). This is probably too much for a man of that age (No. 1 could only accomplish 90 ascents in 3 minutes), but there is no evidence in his constants that recovery after exercise is delayed in the heart muscle.

#### SUMMARY

It is shown that the pulse score in the Endurance Test can increase, not only because of fitness, but also spuriously because of increased vagus tone. This score should be supplemented by blood pressure and electrocardiogram responses, to complete the picture. The latter give no indication that repolarization in the heart muscle is delayed after this exhausting exercise, in the six men studied.

When you buy 7th War Loan Bonds for your boy's medical education, if you buy enough to pay for 3 years, Uncle Sam treats you and him to the fourth.

### Ringworm of the Scalp\*

(Tinea Capitis)

Francis W. Lynch, M.D.† St. Paul, Minnesota

**7** OST medical practitioners are unprepared to give proper care in the present—as yet minor epidemic of ringworm of the scalp. Previous to the past several years there has been no need for local practitioners to be familiar with the problem because only a few examples of ringworm of the scalp were presented for diagnosis and treatment and they were all of one type, i. e., acquired from cattle, easily recognized and easily treated. Other types were recognized as they appeared as sporadic cases in eastern cities of the United States and in fairly well localized epidemics or in endemic form in Europe, where widespread epidemics were occasionally observed. The present epidemic in the United States began on the eastern coast about five years ago and has gradually extended south and west. Infection appeared in Chicago four years ago, where the epidemic has been poorly handled and there the estimates of incidence now vary from 5,000 to 65,000 cases. The first cases were recognized in St. Paul several years ago but only in the past year have they increased in number to the point where the Minnesota Dermatological Society was impelled in November, 1944, to call to the attention of public health authorities, the danger of an impending epidemic. Today St. Paul probably contains between 150 and 500 cases of the disease, more thus far than in other cities of Minnesota.

Previous experience in this community has been limited to a moderate number of cases of infection with T. gypseum, usually acquired from infected cattle, and occasional infections with other organisms, sometimes those from infected kittens. In the present epidemic almost all patients are infected with M. Audouini, and a few with M. lanosum (synonyms: canis, felineum). The organisms can be demonstrated by direct microscopic examination of infected hair properly treated with sodium or potassium hydroxid solution. Such examination can prove the presence of ringworm infection, but for demonstration of the exact cause this method is unsatisfactory. When infected hair is implanted on proper media the organisms grow rapidly and can usually be identified by the gross appearance and more certainly on microscopic study of the colonies. The simplest method of distinguishing between infections caused by T. gypseum and those caused by M. Audouini or lanosum is that of examination by Wood's light (ultraviolet light made invisible by a filter which excludes the rays of visible light), a light that produces fluorescence of hair infected with these two species of microsporum.

When ringworm of the scalp is the result of microsporum infection, visible evidence of disease may be absent until the scalp is examined in "dark light" and flu-

\*Read before the Ramsey County Medical Society meeting, St. Paul. April 30, 1945.
†Clinical Associate Professor, Division of Dermatology, University of Minnesota, Dr. H. E. Michelson, Director.

orescence is demonstrated. When infection is more severe there is a fine scaling, accompanied by few or no pupules when caused by M. Audouini; if caused by M. lanosum, slightly more scale is noticed and small papules are usually present. The hair may be lusterless and brittle with varying amounts of loss in the involved areas. Infection with T. gypseum results in grouped inflammatory papules with or without crusting; when this infection is severe it produces kerion, a rather indolent cellulitis with small abscesses. (This is occasionally observed also in infections caused by M. lanosum). The degree of involvement varies. One or many sites may be affected and these may vary from several hairs to spots several inches in diameter. Not infrequently the infection extends to non-hairy areas; in the severe cases hypersensitivity may result in production of a more or less generalized "id" eruption. Because of the extensive variations in clinical manifestations, for a differential diagnosis almost all those disorders of the scalp accompanied by superficial or deep inflammation and those causing loss of hair must be considered.

	M. Audouini	M. lanosum (felineum, canis)	T. gypseum
Source	human	pets, human	cattle
Clinical inflammation surface kerion	v. fine scale	+ scale occasional	+++ crust common
Course	v. chronic, to puberty	chronic	subacute
Diagnosis direct exam, of hair fluorescence culture	+ + gross*	+ gross*	+ micro*
Response to treatment	epilation necessary	slow	self-limited

\*The two strains of microsporum can usually be distinguished by gross examination of the colonies. Trichophyton colonies can usually be recognized grossly but microscopic study is more con-

Infection with M. Audouini is very resistant to treatment by applications, in fact, in the majority of cases it cannot be cured by topical applications of any known type but will persist until puberty, then disappear spontaneously without trace. This infection is best treated by a single roentgen treatment sufficient to produce temporary loss of at least 85 per cent of the scalp hair. Later periodic examination in dark light permits detection and manual removal of any remaining infected hair; infected areas are treated with mildly fungicidal remedies. Infection with M. lanosum is self-limited; it is treated without x-rays or complete epilation but with the other remedies mentioned above. It is said that three to six months are required for cure. Infection with T. gypseum is more acute and is also self-limited. Effort should be made to

JUNE, 1945

minimize the development of kerion which may heal with areas of permanent scarring and alopecia.

For this brief presentation I have avoided discussion of several problems which are interesting but not immediately germain to the subject. 1) Much work is being done with new improved fungicides but as yet there is not one on the market which is successful against infection with M. Audouini. 2) Temporary epilation results from administration of thallium acetate but the drug can cause death, and it should be used only by experts, with the patient in the hospital. This treatment may be justified under the right conditions when roentgen epilation has failed, 3) Because of the favorable influence of adolescence both topical and parenteral endocrine therapy have been tried but without very encouraging results. 4) Since infections caused by M. lanosum can be acquired from household pets, it is interesting to speculate on the reason for an increased number of these cases during an epidemic caused chiefly by M. Audouini which is spread only from child to child.

The responsibilities of the general practitioner cannot but be somewhat limited in the presence of ringworm of the scalp. He may suspect the diagnosis and exclude

such children from school, but since clinical features are not completely characteristic the diagnosis must be aided by special facilities. Examination in filtered ultraviolet light will demonstrate fluorescence of hair infected by M. Audouini or lanosum; cultural study allows differentiation between these two types of infection. If caused by the former organism the infection should be treated by roentgen epilation; infections with the latter organism will respond slowly to topical therapy. In either case there must be repeated examinations with manual removal of any hair which fluoresce even though the scalp appears to be free from scale or inflammation. No child may be regarded as cured while fluorescence persists. In treatment there are several warning points that should be emphasized: Before epilation the use of topical applications is not only a waste of time, but unless the applications are very mild the irradiation must be delayed until any reaction has subsided. Inadequate or fractional dosage with x-rays is also to be decried because all these exposures have cumulative and permanent effects and an epilation dose can not be administered after any considerable amount of previous roentgen treatment has been

### Book Reviews

Forsdike's Textbook of Gynaecology, by J. H. Peel, M.A., B.M., B.Ch. (Oxon.), F.R.C.S. New York, Grune & Stratton, 440 pages, 1944, price \$3.00.

This book is a concise presentation of gynecology. The student willing to do extra reading on special subjects will find it useful. Rare and unusual conditions are not fully covered and therefore the volume is not so useful for the general practitioner as a reference book.

The microphotographs are generally poor, showing little detail. Many of the drawings are excellent, especially those marked S. A. Sewell.

It is practically impossible to publish a text that is not outdated in some of the rapidly changing therapeutic measures. This is true in respect to the therapy of sulphonamides and penicillin in this volume.

It is of interest that the author recommends for postoperative vomiting a small stomach tube left in place for repeated lavage but does mention nasal suction.

In the treatment of carcinoma of the cervix the Wertheim operation is advised in selected cases. Radium treatment of this disease is carried out first and is followed by deep x-ray therapy three months later.

This volume will be useful for those who wish to go over a gynecological subject rapidly without being burdened by much detail.

Textbook of Gynecology, by EMIL NOVAK, M.D., FA.CS. Baltimore, Williams & Wilkins Co., 708 pages, 1944, price \$8.00.

This is a satisfactory teatbook for the student and general practitioner. It is well illustrated both in color and in black and white. The illustrations are carefully chosen and consequently most instructive. The author has purposely omitted the descriptions of the technics of the various gynecological operations. These should be learned in the operating room and by reference to the several excellent books on the subject.

The author has worked for many years in the pathological laboratory. He has used this interest to good advantage in presenting the gynecological pathology and the excellent illustrations further enhance the value of his descriptions.

Female endocrinology is discussed at length. The author's well known interest in this subject has led him to give more space to the various opinions of others than perhaps is justifiable in a book for medical students.

A new chapter on embryology of the female generative organs has been added to this second edition. In this edition also is a new chapter on urological diseases of especial interest to the gynecologist written by Houston S. Everett.

This is a well planned book and the subject matter is presented most satisfactorily.

Mass Radiography of the Chest, by HERMAN E. HILLEBOE, M.D., Medical Director, Chief, Tuberculosis Control Division, U.S.P.H.S.; Professorial Lecturer on Tuberculosis Control, George Washington University; and Russell H. Morgan, M.D., Medical Officer-in-Charge Radiology Section, Tuberculosis Control Division, U.S.P.H.S., Assistant Professor of Roentgenology, University of Chicago 288 pages, 93 illustrations. Chicago: The Year Book Publishers, Inc., 1945, Cloth, \$3.75.

Appearing just as both lay and medical eyes are being focused on miniature x-ray film methods of detecting pulmonary tuberculosis, this book presents in detail both the technical roentgenologic and the procedural data necessary for such work

After first describing the history of mass radiography from the discovery of the x-ray to the present moment, the authors discuss the basic objectives of tuberculosis control, and then present the actual modus operand of mass radiography in any community. In these chapters case-finding, medical care, patient isolation, and rehabilitation of the tuberculous are integrated with the responsibilities of health departments, local medical societies, sanatoria, voluntary tuberculosis associations and local welfare agencies.

All of the multitude of technical questions regarding roentgenologic features of such work are answered in the intermediate chapters of the book Available equipment, installation designs, physical factors affecting equipment selection and the advisable technic in mass radiography are all given detailed consideration in these chapters. One chapter which will appeal to the roentgenologist, the internist, and the general practitioner is that on roentgen diagnosis of the chest. With 47 instructive x-ray film reproductions the roentgenologist will find testimony of the effectiveness of such miniature x-ray films, and clinicians will have an effective atlas or aid in differential diagnosis of thoracic pathology.

Then follows, through three chapters, minute descriptions and discussions of the records, filing systems and procedures in actual mass radiography work, as well as the necessary study or care of persons found to have significant lesions. In its final chapter this book intriguingly pottrays the future developments in the field of roentgenology and mass radiography.

This volume, even though small, much more adequately covers its field and need than any work previously produced. It is pleasingly written and easy to read. Based as it is on years of experience in such work, it is the complete answer, concisely presented, to the most inquiring and critical medical antagonists and protagonists of mass radiography.

Yellow Magic—the Story of Penicillin, by J. D. RATCLIFF, with a Foreword by CHESTER KEEPER, M.D., and an introduction by Morris Fishbein, M.D. New York: Random House, 173 pp. with index. 10 photographs, 1945, price \$2.00.

The discovery of penicillin belongs with those outstanding events in medical history each of which marks an epoch and determines the nature of medical progress for at least a generation, Dr. Fishbein says in his introduction. It is probably the most important medical discovery in modern times; it is certainly one of the most exciting and dramatic in the long history of man's fight against disease. Mr. Ratcliff has permitted none of the drama to escape him and as his story unfolds few readers will be able to withstand his enthusiasm.

All of us are familiar with the sensational cures of this byproduct of the humble mould, but too few know the details of its finding—the grueling research handicapped by almost fantastic difficulties, the big disappointments and little successes, the unique collaboration among scientists, industrialists and government executives that in a few months made possible the miracle of its mass production.

In his book Mr. Ratcliff traces the story back to its origin in the '20s, to Fleming's simple laboratory at St. Mary's, to the day when a speck of mould floated into his window and lighted on one of his petrie dishes. The shy, quiet English scientist had the wit to study the contaminated plate and in 1929 published his paper describing the antibiotic action of the mould which he mistakenly labeled Penicillin rubrum. (It was actually P. notatum). But so minute was the quantity of the precious drug yielded by great quantities of mould that for ten years it was almost forgotten. Then Dr. Florey who had been working des-

perately in similar fields, rediscovered Fleming's article and in 1941 treated the first case. England was too busy that year to give time or money to a drug, so Dr. Florey and his associate, Dr. Heatley, came to America to "sell" penicillin here. So successful were they that government bureaus and drug houses together agreed to gamble millions of dollars for its production with the result that a mushroom growth of great plants sprang up almost overnight and began to grow the mould and extract the drug before they had roofs to cover them. Three years ago there was not enough penicillin in the world to treat a single patient adequately; today we have not only enough for our army and navy and civilians but soon we shall be providing 95 per cent of that used by the entire world. Much of the credit of this achievement is due Dr. Chester S. Keefer under whose direction the brilliantly organized clinical study was carried on.

Such is the bare outline of the story that Mr. Ratcliff tells, enlivened with details of the plot and with convincing portraits of the heroes. He has devoted careful preparation to his book. He has personally conferred with all the groups concerned. Both Dr. Fishbein and Dr. Keefer attest to the soundness of his presentation. He writes in a vivid, highly readable style that challenges the interest of the reader throughout, be he layman or physician.

Clinical Roentgenology of the Digestive Tract, by MAURICE FELDMAN, M.D.\* Second edition: Baltimore: Williams & Wilkins Co. 769 pages; illustrated. 1945, price \$7.00.

Other books have been published in recent years which have described and explained the roentgen investigation of all or parts of the digestive system, but none, since Carman's 1917 and 1920, has been as inclusive as Feldman's work, first issued in 1938 and now revised and brought up to date. This single volume is an encyclopedia of abdominal diagnosis. The material is presented in outline form; although printed in conventional manner. The division into sections, with numerous sub-headings and the simple, direct sentence structure offers the advantages of a synopsis with the inclusion of comprehensive detail and the merit of readability. The abundant and pertinent references are conveniently interpolated in the text, obviating cumbersome footnotes and appendages. Line drawings and sketches aid in interpretation of many of the excellent reproductions of well chosen roentgenograms. Explanation of technical matters is not extensive, but is sufficient for instruction of readers not trained in roentgenology or gasttoenterology. The point of view is strictly clinical, based obviously on sound observation and experience.

### FEDERATION OF CATHOLIC PHYSICIANS' GUILDS

The Reverend Alphonse M. Schwitalla, S.J., president of the Catholic Hospital Association of the United States and Canada, dean of the St. Louis University school of medicine, will assume the moderatorship of the Federation of Catholic Physicians' Guilds, and the editorship of the federations' journal, the Linacre Quarterly, after the meeting of the executive board. Father Schwitalla succeeds the Reverend Ignatius W. Cox, S.J., professor of philosophy, Fordham university, New York City, both as moderator of the federation and as editor of the Linacre Quarterly. Father Cox is author of numerous papers on the ethical and religious aspects of medicine. At the present time there are Guilds in New York, Brooklyn, the Bronx, Boston, Belleville, Chicago, San Francisco, Little Rock, Wichita, New Orleans, Cleveland, Philadelphia, Great Falls, Dubuque, Wilmington, St. Louis, Newark, Detroit, and in Hamilton, Canada. In the business management and administration of the Federation, the Catholic Hospital Association will act as agent on behalf of the Catholic Physicians' Guilds. The Linacre Quarterly from its inception in 1932 has been the only journal of its kind in the country, having as its purpose the preservation of ethical and spiritual values in the practice of medicine, particularly among Catholic physicians.

<sup>\*(</sup>Feldman: Asst. Prof. Gastroenterology. U. of Maryland; Asst. in Gastroenterology, Mercy Hospital, Baltimore; Consulting Roentgenologist, Sinai Hosp., Baltimore.)

June, 1945

### American Student Health Association News-Letter and Digest of Medical News

#### EXERCISE AND CONVALESCENCE

Dr. C. H. McCloy of the University of Iowa calls attention to the importance of physical exercise for the hospital patient. When a patient goes to a hospital, especially when he is immobilized for some time, he tends to retrogress rather rapidly. A patient in excellent condition retrogresses even more rapidly. It has been found by experimentation in the physiological laboratory that an individual capable of enduring 18,000 kilogrammeters of work in a given time without rest, after two weeks' inactivity in which time he is walking around but doing no other exercise, will retrogress until he has the ability to do only 8,000 kilogram-meters of work in that time.

A well-conducted and long-continued experiment at Jefferson Barracks, in St. Louis, by Lieut. Colonel Rusk and Captain Ericksen, on cases of atypical pneumonia has provided clear-cut evidence of the value of exercise programs in the reconditioning of these patients. There were two series of these patients distributed in alternate groups. One group was permitted to stay around the hospital with very little attempt at reconditioning, just as has usually been the practice in civilian life. The other group, which may be called the experimental group, was started on gentle exercise after the sedimentation rate had reached 10 mm, in thirty minutes. The exercise was then very rapidly increased in severity from day to day. The non-exercise group remained in the hospital an average of forty-five days and after going back to duty exhibited a 30 per cent relapse. The experimental group which went through the reconditioning program spent an average of thirty days in the hospital with a relapse rate of only 3 per cent. In other words, they saved fifteen days' hospitalization and had 27 per cent less incidence of relapse.

Due care must be exercised, of course, to see that individual differences in condition, either due to the severity of the illness or to the initial physical condition of the man, are allowed for and taken fully into account in the prescription of exercise for each man.

Reference. McCloy, C. H: "The reconditioning of patients," Bulletin of the U S. Army Medical Department, 23-24, [No. 79], August 1944.

#### ALCOHOLIC THIRST

Giorgio Lolli, M.D., Miriam Rubin, B.S., and Leon A. Greenberg, Ph.D. of Yale University point out that it has long been observed that thirst is one of the features of acute alcoholic intoxication as well as of the so-called "hang-over" period. And it has long been suggested, but without any valid basis, that alcohol, through its affinity for water, "dehydrates" the body. Dehydration of this type is not exercised upon the cells by alcohol in the concentrations found even in deepest intoxication. The existence of the thirst, however, does suggest either a con-

sidrable loss of water from the body or a redistribution of water in the body.

231

The present investigation was carried out to explore the possibility that a shift in water, over and above that from diuresis, takes place from the intracellular to the extracellular fluid. Rats were used as the experimental animals throughout. Before studying the effect of alcohol, the normal volume of extracellular water was determined in 16 rats receiving food and water freely and in 7 rats deprived of food and water for twenty hours before the determination.

Two groups of animals, one receiving food and water freely and the other deprived of these for twenty hours previous to the experiment, were given alcohol in 50 per cent solution by stomach tube. In both groups there was an increase of extracellular fluid. The rise was much greater in the animals that had received food and water. Thus, at four hours the extracellular fluid had increased to an average of 43.1 per cent in the fed animals and to 33.6 per cent in the fasted animals. There was a subsequent decline in the volume of fluid. At twenty hours, however, when alcohol was no longer present in the blood, a time corresponding to the period of "hangover," a second appreciable rise in the volume of extracellular water was observed; the average for the fed animals was 40.5 per cent, and for the fasted animals, 35.3 per cent.

The maximum increase of extracellular water occurred at the end of two hours, with no second rise after twenty hours.

Alcohol given either by stomach or intravenously, to fed or fasted animals, resulted in a marked shift of water from the intracellular to the extracellular spaces. That such a shift can be a major factor in the production of thirst during and after alcoholic intoxication seems probable. The term "dehydration," as generally applied to the physiological effects of alcohol, can be more specifically defined as a dehydration of the cells and not of the body as a whole.

Reference. Lolls, Giorgio, Minam Rubin and Leon A Green berg: "The effect of ethyl alcohol on the volume of extracellular water," Quarterly Journal of Studies on Alcohol. 5 1-4. (No 1), June 1944

Colonel H. K. Moore, chief of the meat and dairy hygiene branch, states that the veterinary corps is inspecting over 700 million pounds of foods of animal origin per month. The armed forces require each day about 19,000 cattle, 27,000 hogs, 600 calves and 5,000 sheep and lambs—all of which must be inspected to insure that it complies with army specifications as to weight, class and grade, method of processing and packaging. Not a single widespread outbreak of disease traceable to unwholesome meat or dairy products has occurred among out troops.

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Minneapolis, Minnesota, June, 1945

### HOME NURSING HELPS

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The American Red Cross has been organizing a great number of free courses in "Home Nursing" throughout the country and up to the present more than one and a quarter million certificates have been issued to those who have taken the standard twenty-four-hour or the new twelve-hour course designed to cover only the basic procedures in home nursing for hard-to-reach adult groups. The students are definitely told that attendance at these classes does not make of them nurses nor are they being taught to supplement the doctor, but they are instructed: "How to recognize the most common signs of illness.

What information to give the doctor when he is called. How to carry out the various procedures which he may

How to take a temperature and to read a thermometer.

How to give an enema.

How to bathe and handle a bedfast patient with the least disturbance and effort.

Bedmaking.

Methods of keeping proper records for the doctor's information.

Methods of disposal of excreta and handling of contagious diseases within the home when necessary.

Preparation of proper diets for the patient.

Understanding of public health problems."

The goal is to reach, if possible, one person in every household in America. The purpose is to make every citizen health conscious. It will serve this purpose in the present emergency and also assure intelligent cooperation with physicians and nurses in the future.

A.E.H.

#### POST-WAR PLANNING FOR HOSPITALS

Amid the confusion of post-war planning and reconverting, nothing seems more certain than that the nation, from Congress down, will emerge from the war more health conscious than ever before in its history. One thing seems fairly established. New hospitals and health centers will hold a leading place in federal plans to assist communities to raise their health standards. It is equally certain that to obtain federal aid for a hospital a community will be required to share the financial responsibility and also to prove that the new hospital it wants will meet established standards of construction, equipment and medical support. The staffs of these hospitals will be the final determining factor in their efficiency. The doctors concerned must be the ablest medical men in the community. State health departments, medical societies-state, district and county-and the most enlightened members of the community, must work in the closest cooperation to this end.

The experience of some states suggests that it is not too early to start such a cooperative group in the education of the public and its officials. In many states it may prove necessary to pass new bills or to amend old ones to permit communities to sell bonds for hospital purposes. These bills may well provide the opportunity for all manner of irregular "practitioners" to get a foothold, unless governors, legislators and the public are wide awake to the significance of their wording.

M.U.

### . . AMONG OUR CONTRIBUTORS

Among the varied and human pleasures of medical publishing not the least is the one that concerns our contributors,—their educational backgrounds, their personalities as revealed by their writings. That our readers may share this pleasure with us is the reason for these brief notes.

Dr. Ralph E. Leigh (Grand Forks, North Dakota), who contributes the introduction to this symposal issue, is the president of the North Dakota Society of Obstetrics and Gynecology, and served previously as its secretary. He received his bathelor of medicine degree from the University of North Dakota in 1923 and his doctor's degree from Minnesota, two years later, beginning his practice of obstetrics and gynecology at Grand Forks after two years of graduate work at Kings County hospital, Brooklyn, New York. Dr. Leigh 15 a fellow of the American College of Surgeons.

Dr. Edward Madison Ransom (Minor, North Dakota), a past president of the North Dakota Society of Obstettics and Gynecology, was the incumbent four years ago when The JOURNAL-LANGET was appointed the society's official organ. He is a graduate in the class of 1904 of the University of Minnesota medical school, with certification by the American Board of Obstetricia and Gynecology and is a member of the Central Association of Obstetricians and Gynecologists. Dr. Ransom has practiced in Minor for thetry-seven years.

Dr. Bernard Urenn (Fargo, North Dakota) was graduated from the University of Minnesota medical school in 1934 after which he spent three years in preparation of his specialty, gynecology and obstetrics and as a teaching fellow. He has practiced nearly eight years in Fargo and is an active member of both Minnesota and North Dakota state medical societies and of the North Dakota Obstetrical society. He is also a member of the honorary medical society Alpha Omega Alpha.

Dr. Wilbert Ashton Liebeler (Grand Forks, North Dakota) received his medical training at the University of Illinois, his graduate work at the Cook County hospital of Chicago and the Nilwaukee General. He specializes in surgery. He is a FA.C.S., a member of the International College of Surgeons, and of state and local medical societies. He has served as both president and secretary of the district medical society.

Dr. Harry Roemer McPhee (Princeton, New Jersey) has specialized for 17 years in student health work at Princeton university, where he is associate professor of health and physical education, athletic physician and the head of student health work. He has also served as president of the Pennsylvania-New Jersey student health association. Dr. McPhee spent two years with the A.E.F. in the medical corps during the last war. His medical training was received at Western Reserve university.

Dr. Philip Varnum Wells (Newark, New Jersey) is a biophysicist of the Prudential insurance company and is known to physicists as the designer of the flarimeter for tests of the circulation and for his numerous papers on physics and biophysics After receiving his bachelor of science degree at the Massachusetts Institute of Technology, he studied at the University of Paris, France, where he received his doctorate in science. For nine years therafter he worked at the Bureau of Standards at Washington, D. C. He is a member of numerous scientific societies among which are the American Physical Society and the American Statistical Association.

Dr. Sveree Quisling (Madison, Wisconsin) is a graduate of Rush medical school of the University of Chicago and was in the class of 1922. He specializes in internal medicine for which he prepared at the University of Pennsylvania graduate school of medicine, at Columbia university, Wisconsin and Vienna. He is a member of state and local medical societies and a fellow of the American Medical Association. He is also a diplomate of the national boatd of medical examiners and belongs to the honorary society Sigma Sigma.

Dr. Leonard J. Stark (Cincinnatt) is an instructor of orthopedic surgery at the College of Medicine in that city, in which community he has practiced his specialty of orthopedic surgery for a year. His alma mater is the University of Louisville from which he graduated in 1939, after which he took graduate work at the University of Pennsylvania and Cincinnati general hospital. Dr. Stark holds membership in the Academy of Medicine of Cincinnati and has been honored by Alpha Omega Alpha.

Dr. Francis W. Lynch (St. Paul) graduated in medicine from the University of Minnesota in December, 1929 and has, also, a master's degree in dermatology and syphilology from the same institution. He spent 1930, 1931, 1932 and 1933 in graduate work at this school, entering practice in St Paul at the end of that period and specializing in dermatological and syphilogical work. His memberships include the American Dermatological association, American Academy of Dermatology and Syphilology and the Society for Investigative Dermatology. In addition he is a member of the honorary fraternity Sigma Xi

#### "SOCIAL SECURITY AMENDMENTS"

May 24th, Senator Robert F. Wagner of New York, with Senator Murray, introduced Senate Bill S 1050, providing for "the national security, health and public welfare." Simultaneously, Representative Dingell of Michigan introduced a companion bill, HR 3293, in the House. The legislators invite the earnest study by doctors of the provisions of the bill, stating that there is no intention on the part of the authors to "socialize" medicine, and that the bill does not do that. They say that they are opposed to socialized medicine or to State medicine and acknowledge having been benefited greatly from the constructive advice and suggestions of practicing physicians in preparing the bill which, they say, is changed materially from the one they presented in the last congress.

### News Items

The regular convention of the North Dakota state medical association was cancelled for this year, but the council and house of delegates met in Valley City on May 20 and 21. The main subject discussed was the prepaid medical insurance plan, which had been prepared by the committee on medical economics. There was no scientific program. Dr. James F. Hanna of Fargo was elected president, A. E. Spear of Dickinson, presidentelect; P. G. Arzt of Jamestown, first vice president; W. A. Liebeler of Grand Forks, second vice president; John H. Moore of Grand Forks, speaker of the house; L. W. Larson of Bismarck, secretary; W. W. Wood of Jamestown, treasurer; A. P. Nachtwey of Dickinson, AMA delegate, and W. A. Wright of Williston, alternate. Minot was selected as the 1946 convention city. Councillors elected, terms expiring 1948, were A. D. Mc-Cannel of Minot, Fourth district; C. J. Meredith of Valley City, Fifth, and A. E. Westervelt of Bowdon, Ninth. Nominated to the state board of medical examiners were W. H. Long of Fargo, F. W. Fergusson of Kulm and O. W. Johnson of Rugby. John H. Moore of Grand Forks was nominated to the Advisory Council for the medical center at Grand Forks. About forty attended the convention sessions.

The two-day annual meeting of the North Dakota hospital association was held in Bismarck, on May 9 and 10. Dr. George F. Campana, state health officer, spoke on the Emergency Maternity Infants Care (EMIC) program in the state. The program included discussions of postwar problems and of U.S. SB 191, dealing with allocations of funds to hospitals.

The North Dakota Society of Obstetrics and Gynecology held its semi-annual meeting Saturday, May 26th, at the Gardner Hotel in Fargo, North Dakota. The following program was presented: "The Rh Factor in Pregnancy," Dr. F. L. Schade, Worthington, Minnesota. "Case Report-Erythroblastosis Fœtalis," Dr. E. H. Boerth, Buffalo, North Dakota. "External Version," Dr. Paul Freise, Bismarck, North Dakota. "Amnion Fluid Embolism," Dr. Russell Moe, Duluth, Minnesota. "Case Report-Postpartum Mesenteric Thrombosis," Dr. Wm. Mercil, Crookston, Minnesota. "Radium in Menopausal Bleeding," Dr. Robert Woodhull, Minot, North Dakota. "The Pre & Intra Partum Use of Ergot," Dr. C. J. Ehrenberg, faculty of University of Minnesota Medical School, Minneapolis. The list of new officers is as follows: President, Dr. E. H. Boerth, Buffalo; vice president, Dr. Paul Freise, Bismarck; secretary-treasurer, Dr. G. Wilson Hunter, Fargo. Following the evening banquet, the society was entertained by Dr. Frank Darrow, past president of the North Dakota Medical association with feats of magic and legerdemain.

Dr. M. R. Snodgrass, Anaconda, Montana, has been appointed chief of surgery at the Warren clinic located at Michigan City, Indiana.

The ODT would not permit the holding of the regular meeting of the South Dakota state medical association and, therefore, the officers and house of delegates held a meeting on June 9 and 10 at Watertown. The officers of the district medical societies and the chairmen of all the standing and special committees were invited to attend.

Dr. P. D. Peabody of Webster, South Dakota, has announced the sale of the Peabody hospital and nurses' home to the Lutheran Hospital and Homes Society of America. The sale does not affect the clinic and the hospital and nursing staff will remain unchanged. The Lutheran Hospital and Homes Society has its headquarters at Fargo and operates 17 non-profit institutions in the midwestern states. The Webster hospital, now to be known as the Peabody memorial hospital has a capacity of 75 beds.

Dr. Myron C. Tank, of Brookings, South Dakota, has joined the Brookings clinic and will henceforth be associated with Dr. H. A. Miller and Dr. Magni Davidson.

Among northwest medical men recently promoted in the Army are: William Donald Graham, M.C., St. Paul, lieutenant-colonel to colonel; William Congdom Harrison, M.C., Minneapolis, major to lieutenant-colonel; Theodore John Pfeffer, M.C., Racine, Wisconsin, major to lieutenant-colonel; David W. Hilger, M.C., and Lester T. Roach, M.C., both of St. Paul, captain to major.

Dr. H. M. Erenfeld of Minot, North Dakota, was elected president of the medical staff of Trinity hospital, Minot, May 8.

A public reception was given recently for Dr. and Mrs. A. Montero in Castlewood, South Dakota. Dr. Montero, a native of Costa Rica, has resided in this country four years and succeeds to the practice of the late Dr. J. B. Vaughn of Castlewood.

Dr. I. J. Bridenstine has moved from Terry, Montana, to Miles City to practice with the Garberson clinic.

Devils Lake, North Dakota, held its annual clinic for crippled children, sponsored by the Devils Lake Elks lodge in cooperation with state and county welfare boards on May 5.

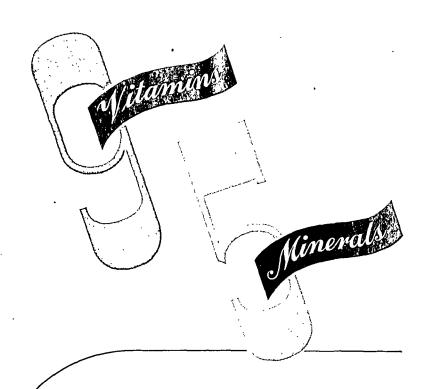
### Necrology

Dr. Earle M. Young, 58, Mitchell, South Dakota, died March 21 of coronary occlusion. Dr. Young was a graduate of Rush medical school and practiced in South Dakota for 32 years. He was city health officer and widely known throughout the northwest.

Dr. W. M. Dodge, 78, Farmington, Minnesota, died in Miller hospital, April 28, after a long illness. Dr. Dodge was a graduate of the Minnesota medical school of the class of 1893.

Dr. R. W. Getty, 77, Galen, Montana, died suddenly of a heart attack on the train at Gold Creek, May 6. He had been a staff physician at the State Tuberculosis hospital at Galen for many years.

Dr. H. W. Power, 66, Conrad, Montana, died April 13 of carcinoma of the lung.



multivitamin-mineral product best suited to the requirements of modern medical practice and to the patient's preference for a conveniently administered preparation. It provides 9 vitamins and 5 minerals in a pleasantly flavored tablet which is willingly taken by children and adults—a tablet so palatable that it may be chewed. Available in bottles of 30, 100, and 250. HOFFMANN-LA ROCHE, INC., Nutley 10, N. J.

### VITAMINETS 'ROCHE'

### Classified Advertisements

#### ASSISTANCE AVAILABLE

Aznoe's, established in 1896, has available a number of well trained physicians (diplomates of the specialty boards, industrial physicians and surgeons, general practitioners, psychiatrists, tuberculosis specialists and residents). For histories, write Ann Woodward, Aznoe's-Woodward Medical Personnel Bureau, 30 North Michigan Ave., Chicago 2, Ill.

### EQUIPMENT FOR SALE

1) Operating sterilizer, electric, volt 110, from Wilmot-Castle Co., Rochester, N. Y., original cost, \$232; 2) Intratherm short wave apparatus, Paul E. Johnson, Chicago, model 17 P, original cost, \$450; 3) Burdick colonic lavage apparatus, original cost, \$150; 4) one polariscope, Franz Schmidt & Haensch, Berlin, cost price, \$100; 5) one wood examining table; 6) obstetrical instruments at 50% of catalog list price. For inspection phone Dr. E. Klaveness, Nestor 6707, between 2 and 5 p.m.

### FOR SALE

Forced to retire from general medical and surgical practice on account of health. Following equipment to be sold at private sale; medical library and cases, major and minor surgical instruments, cowhide emergency cases, electrical apparatus, modern white steel Hamilton office examining table, 1943. Communicate with N. K. Hopkins, M.D., Box 186, Arlington, South Dakota.

### PHYSICIAN WANTED

Wanted: Physician and surgeon for well-established clinic in northwest with large industrial practice and twelve clinic branches located along the west coast. Excellent chance for the future. Apply to Dr. A. W. Bridge, The Bridge Clinic, 744 Market Street, Tacoma, Washington.

### FOR RENT

Available July 1st, doctor's office, good south Minneapolis location on streetcar and bus lines. Heat and hot water furnished, step-on faucets, portable telephone plugs, buzzer system. Beautifully decorated; venetian blinds: indirect lighting. X-ray and developing rooms. Reasonable rent. Owner, S. Holland, 3615 - 18th Ave. South, Minneapolis 7, Parker 2249.

### FOR SALE

Ultra violet ray (Alpine Sun) lamp made by Hanovia Chemical and Manufacturing Company for 110 volt alternating current. Call Kc. 0089, Stanley Partridge, 1010 Mount Curve Avenue, Minneapolis.

### Advertisers' Announcements

### POSTWAR JOBS IN MEDICAL OCCUPATIONS

Students, teachers, parents and others interested in medical occupations will find helpful information in three new six-page occupational abstracts on Medicine, Nursing, and Medical Laboratory Technologist, just published by Occupational Index, Inc., New York University, established under a grant from the Carnegie Corporation of New York.

Each abstract covers the nature of the work, abilities and preparation required, entrance and advancement, earnings, number and distribution of workers, postwar prospects, advantages and disadvantages and sources of further information, including a select bibliography of the five best references.

SQUIBB ADDS PITUITARY GONADOTROPHIN TO HORMONE LINE

For the treatment of hypogonadism resulting from pituitary hypofunction, E. R. Squibb & Sons, New York, have added to

their extensive line of hormone products a pituitary gonadotrophin. This is a highly purified, stable preparation extracted from the pituitary glands of horses, the pituitaries of which are richer in gonadotrophin than those of any other species except man. Pituitary Gonadotrophin Squibb contains the folliclestimulating and the luteinizing hormones, the former being predominant and the latter being present in small amounts. Biologic standardization is expressed in rat units, one unit being the amount which, divided into six doses and administered during 72 hours to each of a group of at least 20 rats initially 28 days old, will cause uterine hypertrophy in more than 50 per cent of the group 24 hours after the last injection. Four such units similarly injected will cause at least a four-fold increase in ovarian weight as compared to control rats.

Pituitary Gonadotrophin Squibb is supplied in dry form in 5-cc. rubber-diaphragm capped vials containing 125 rat units (25 units per 1 cc.) together with a 5-cc. ampul of sterile isotonic solution of sodium chloride for use as a diluent.

#### "PIONEERS OF AMERICAN MEDICINE"

The May issue of Coronet contained eight pages of reproductions in four colors of the celebrated "Pioneers of American Medicine" series which Dean Cornwell, noted American muralist and genre painter, and member of the National Academy, has executed to date for Wyeth Incorporated, of Philadelphia.

In faithful detail some of the most celebrated dramatic scenes in the history of American medicine are illustrated. These are: "The Dawn of Abdominal Surgery," "Osler at Old Blockley," "Beaumont and St. Martin," "The Father of American Phar-

macy," "Conquerors of Yellow Fever."

Feeling that American physicians and scientists should be better known to their fellow countrymen, Wyeth Incorporated conceived the plan of commissioning an outstanding American illustrator to do the series in 1939. So far, five canvases have been completed. Says Coronet: "It is to be hoped that the series 'Pioneers of American Medicine' which we have reproduced by special permission of Wyeth Incorporated will contribute in a small measure at least to the clearer recognition of the achieve-ments of our American medical heroes." (Originals of the Cornwell paintings were on exhibition at the Enoch Pratt Library in Baltimore in May.)

#### NEW SEDATIVE-ANTISPASMODIC

Hoffman-La Roche, Inc., of Nutley, N. J., recently announced to the medical profession a new, superior sedative-antispasmodic called Syntronal. Syntronal has a threefold effect in all disorders associated with smooth muscle spasm and nervous tension. It selectively inhibits the parasympathetic terminations in smooth muscle but in contrast to atropine it is not likely to cause undesirable side reactions; it also has a direct relaxing effect on spastically contracted smooth muscle fibers, and it relieves nervous tension and apprehension which are often significant factors in spastic disorders. Syntronal may be prescribed with complete confidence in all disorders in which smooth muscle spasm is responsible for pain and functional disturbances. Syn-, tronal is available in sugar-coated tablets, bottles of 30 and 100. Each Syntronal tablet contains 50 mg. of Syntropan "Roche" (phosphate of d,1-tropic acid ester of 3-diethylamino-2, 2-dimethyl-1-propanol) and 15 mg. of phenobarbital.

### NION CONDOCAPS FOR ARTHRITIS

Nion Corporation announces a new improved Condocap for the treatment of arthritis. In addition to the new formula Condocaps have been streamlined. The vitamin content has been emulsified in and coated with gelatin. The emulsion permits gradual disintegration and controls after taste. Their smaller size makes them more easily swallowed.

The increased vitamin B complex factors in Condocaps help to avoid an occasionally encountered sensitivity and to improve the coexistent malnutrition. Each Condocap Improved contains: Vitamin D, 50,000 U.S.P.XII units; thiamine, 0.5 mg.; riboflavin, 0.5 mg.; niacinamide, 2.5 mg.

Vitamin D has been used in arthritis for more than ten years with material success and is a valuable adjunct to a well-rounded program of treatment. The earliest signs of improvement are usually nutritional followed by increased muscle tone, less stiffness, diminution of pain, increased mobility, decreased swelling, lessened deformity, less tendency to become fatigued, and a gradual return to normal functional activity.

## DIET PROBLEMS IN GERIATRICS

As digestive efficiency declines, along with other faculties, there may be increasing difficulty in meeting the need for foods with bland nutritional properties. The requirement for adequate protein is also one that should not be neglected in the diet of the older patient.

Knox Gelatine (U.S.P.) is helpful in maintaining the nutritional optimum. It is all protein, containing no sugar or artificial, acid flavoring. Used in warm milk, as in the drink described below, it is often prescribed to aid sleep. And in the many dietary recipes developed for Knox Plain Gelatine, patients find a pleasing variety.

Knox Gelatine Milk Drink: Soak one envelope of Knox Gelatine in 1/2, cup milk. Stir over hot water until gelatine thoroughly dissolves. Add 1/2 cup of cold milk. Flavor with vanilla or chocolate syrup if desired. Mix and drink,

### KNOX GELATINE U.S.A.

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## In the Rapid Eradication of GONORRHEA



HOUGH the sulfonamides presented a signal advancement in the treatment of gonorrhea, many published reports indicate that penicillin is the therapeutic agent of choice for three potent reasons. First, efficacy: penicillin proves effective in virtually all instances. Second, safety: penicillin is practically nontoxic. Third, brevity of treatment; in the majority of cases, definite cure can be effected in 24 to 48 hours.

Studies at an Army Station Hospital showed that most sulfonamide-resistant gonococci are fully susceptible to penicillin; that penicillin resistance is difficult to establish.

Frisch, A. W.; Behr, B.; Edwards, R. B., and Edwards, M. W., Am. J. Syph., Gonor., & Ven. Dis. 28:527 (Sept.) 1944.

From a study of 109 patients, the conclusion is drawn that penicillin effectively eradicates chemoresistant gonorrhea in the female.

Greenblatt, R. B., and Street, A. R., J. A. M. A. 126:161 (Sept. 16) 1944.

At a U. S. Naval Hospital, 200 cases of sulfonamide-resistant gonorrhea treated with penicillin, showed no toxic reactions; all returned to duty in one-third of the

time previously required.

Scarcello, N. S., New England J. Med.
231:609 (Nov. 2) 1944.

"In the Technical Bulletin of Medicine, No. 26, recently issued by the War Department, penicillin is stated to be the drug choice in the treatment of gonorrhea. J. A. M. A. 126:575 (Oct. 28) 1944.

191 consecutive cases of sulfonamide-resistant gonorrhea responded dramatically to penicillin.

Wigh, R., and Geer, G. I. Jr., J. Maine M. A. 35:207 (Nov.) 1944.

No toxic effects were observed in a series of sulfonamide-resistant gonorrhea of the female treated with penicillin. As compared to hyperpyrexia, penicillin treat-ment "is incomparably easier, simpler, safer, cheaper, and just as effective.

Barringer, E. D.; Strauss, H., and Horowitz, E. A., N. Y. State J. Med. 45:52 (Jan. 1)

### PENICILLIN-C. S. C.

For therapy in the physician's office and in the patient's home, the Combination Package of Penicillin-C.S.C. deserves the physician's preference. It provides two rubber-stoppered, aluminum-sealed, serum-type, 20 cc.-size vials, one containing 100,000 Oxford Units of Penicillin-C.S.C., the other 20 cc. of sterile, pyrogen-free physiologic salt solution. Penicillin-C.S.C. is of high purity, as indicated by the small amount of substance required to present 100,000 Oxford Units.

PHARMACEUTICAL DIVISION

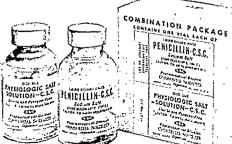
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Penicillin-C.S.C. stands accepted by the Council on Pharmacy and Chemistry of the American Medical Association.





So many pregnant women can't—or just plain won't—drink milk in sufficient quantity to meet their calcium requirements, that nutritive prophylaxis is frequently indicated. For simple routine to assure adequate intake of calcium, phosphorus and vitamin D, prescribe

2 capsules of Squibb Dicalcium Phosphate with Viosterol tid. in conjunction with dietary adjustment. This recommended dosage supplies a total of 7.8 grains of calcium (in itself about one-half the total daily requirement) and an adequate amount of vitamin D to assure its utilization.

## Dicalcium Phosphate Compound

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#### PROMOTE DIGESTION FAT

When fat digestion is impaired due to deficient bile secretion, and when fatty foods prove intolerable in the absence of gallbladder involvement, Degalol-the original, chemically pure deoxycholic acid -offers noteworthy advantages.

A constituent of human bile, it is the fraction chiefly concerned with fat emulsification, promoting the digestion and absorption of ingested food fats and the utilization of the fat-soluble vitamins.

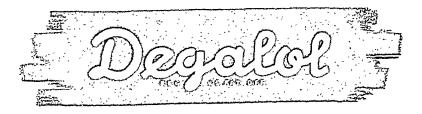
In the dosage required, Degalol exerts little or no choleretic influence. Thus it proves superior to ordinary bile salts which not only are less potent in their influence on fat emulsification, but-since they are required in higher dosage-produce side actions which are frequently undesirable. The powerful choleretic influence of the bile salts, for instance, is definitely to be avoided in catarrhal jaundice. though fat digestion and vitamin absorption are to be enhanced.

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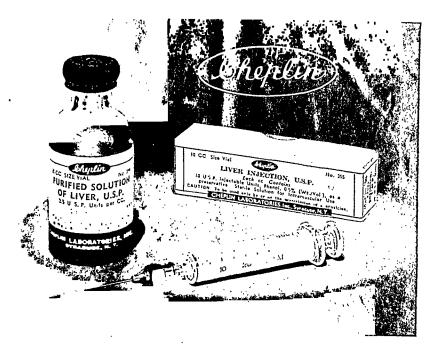
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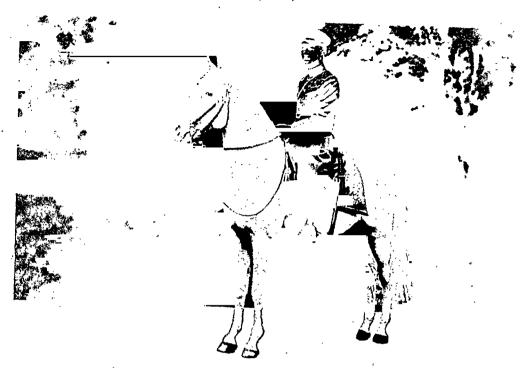
Favorable hematopoietic response is observed with parenteral use of this sterile, purified, clinically-assayed liver solution. CHEPLIN LIVER INJECTION gives the degree of reticulocyte response and erythrocytic maturation desired in treating pernicious anemia in relapse. Also supplied for maintenance of restored blood levels in pernicious anemia and in treatment of certain other macrocytic anemias. Literature on request.

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Admiral Halsey has his eye on a fine white horse called Shirayuki.

Some time ago, at a press conference, he expressed the hope that one day soon he could ride it.

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He is the ruler of as arrogant, treacherous, and vicious a bunch of would-be despots as this earth has ever seen.

The kind of arrogance shown by Tojo—who was going to dictate peace from the White

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JOURNAL LANCET

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At prescription pharmacies in bottles of 100 and 1000 tablets.

\*Fairo, C. J.: Indust. Med. 12: 201-202 (1943)

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50 mg. each per cc.

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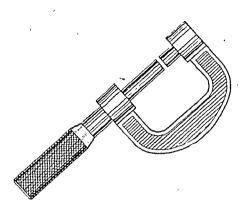
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may be used whenever a potent sedative is needed, with every assurance that it will meet fully the demands made upon it.

Especially when a sedative must be continued over long periods will PASADYNE demonstrate its unusual therapeutic power as well as freedom from evil effects.

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When medical science developed liver therapy, it found a "precision instrument" for dealing with pernicious anemia.

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For precision in liver therapy, you may rely upon

PURIFIED SOLUTION OF

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Anti-Asthmatic

INDICATIONS: Spasmodic bronchial coughs; certain asthmatic conditions; non-specific infections of the upper respiratory tract.

Triodyde is non-narcotic and non-alcoholic. It can be efficaciously administered to children as well as adults in water, milk or fruit juice.



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Does not alter the flavor or bouquet of your favorite drink.

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The Easy TABLET — No Heating URINE-SUGAR TEST

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Includes - Tablets for 180 tests, test tubes, rack, droppers, color scale, instructions. . . Additional tablets can be purchased as required.

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The direct action of an arsenical with the simultaneous prophylactic activity of bismuth.

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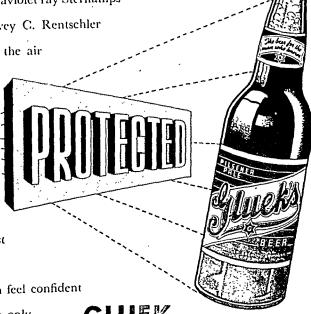
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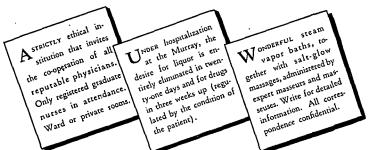
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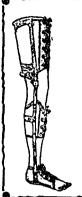


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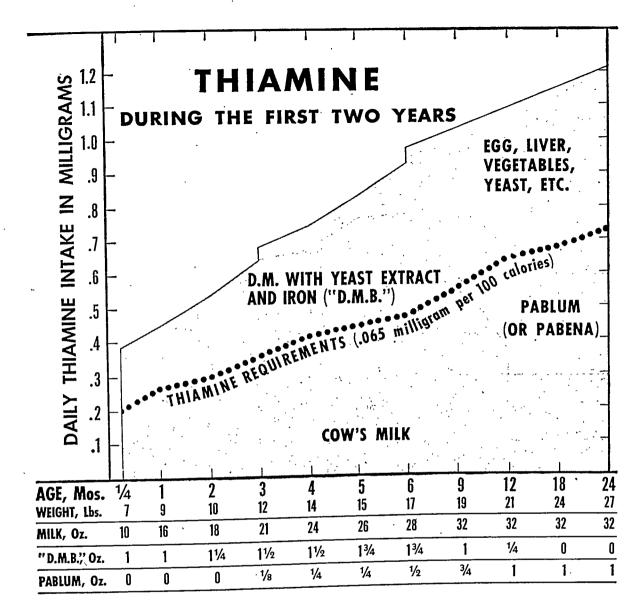


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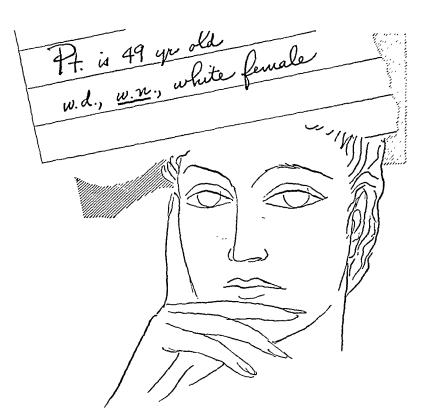
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1. Spies, Tom D., Cogswell, Kobert C., and Vilter, Carli JAMA (Non. 19 No. Tom D. M. Clin North America 27 273, 1943, 2. Spies, Tom D. J. J. M. 1949, 1943, 3. Jolliffe, Norman, and Smith, James J.: Med. Clin, P.I. A., 2748 4.



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1. Compton, B. C.; Bieren, R. E.; Jones, E. G.; Inloes Jr., B. H.; Kardash, T., and Hundley, J. M.: Treatment of Gonococcic Vulvovaginitis , J.A. M.A. 127:6 (Jan. 6) 1945.



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#### July, 1945

Indications for Bronchoscopy in Pulmonary Disease, Paul H. Holinger, M.D.	. 235					
Fatigue as a Symptom in Depressed Patients, Gordon R. Kamman, M.D., F.A.C.P.	238					
Malaria: Medical Observations in South China and Notes on the Health Situation						
in an Internment Camp Under the Japanese, Chester W. Lawson, M.D.	241					
Roseola Infantum, O. M. Moore, M.D.						
MINNEAPOLIS ACADEMY OF MEDICINE						
Needle Biopsy of the Liver, F. W. Hoffbauer, M.D.	246					
Ophthalmology, Erling W. Hansen, M.D.	248					
Use of the Passive Transfer or Indirect Method of Skin Testing in Allergic Diseases,						
F. W. Wittich, M.D.	249					
Allergy in Dermatology, Carl W. Laymon, M.D.	251					
Ophthalmic Migraine, Walter Lees Hoffman, M.D.	252					
Glomus Tumor, John F. Pohl, M.D.	253					
The Management of Acne Vulgaris, Harry A. Cumming, M.D.	254					
Resection of Pancreas for Hyperinsulinism Due to Islet-Cell Tumors,						
Stanley R. Maxemer, M.D.	256					
American Student Health Association News-Letter and Digest of Medical News	257					
MEET OUR CONTRIBUTORS	259					
BOOK REVIEWS	259					
EDITORIALS						
Anxiety Neurosis	260					
Taking an Inventory	261					
NEWS ITEMS						
NECROLOGY						
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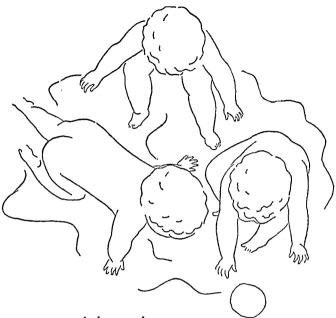
\* Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154 Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60



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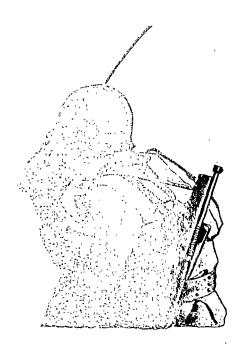


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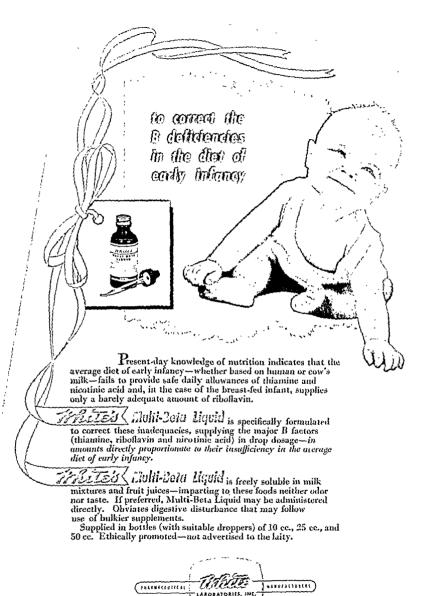


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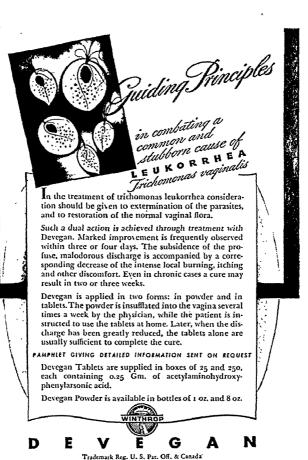
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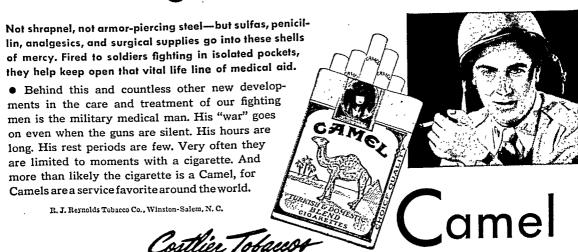
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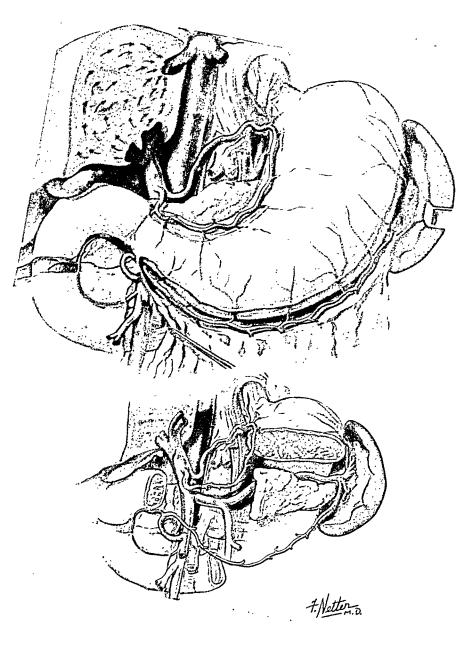






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1. Goodman, Louis and Gilman, Alfred: The Pharmacological Basis of Therapeutics, The Macmillan Company, New York, page 936, 1941.

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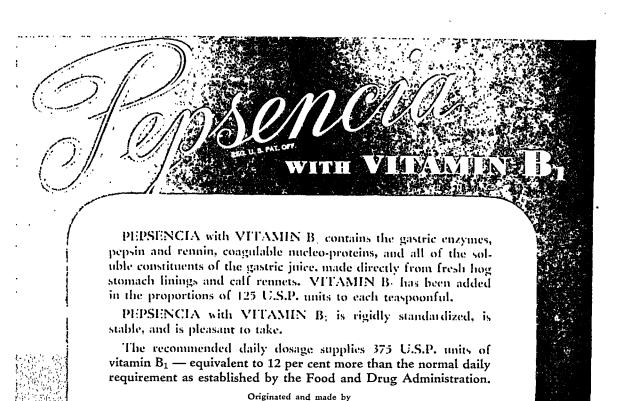
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### Indications for Bronchoscopy in Pulmonary Disease\*

Paul H. Holinger, M.D.; Chicago, Illinois

N recent years bronchoscopy has become a universally accepted procedure in chest work. The bronchoscope is considered simply a speculum used to visualize, directly, the trachea and bronchi. Indications for bronchoscopy have so broadened that now the procedure is considered a routine aid in both the diagnosis and the treatment of diseases of the chest. New instruments and new technics have made possible and safe the bronchoscopic examination of a patient of any agefrom the newborn infant to the adult.

There are three general headings under which indications for bronchoscopy may be listed: Bronchial obstruction, pulmonary suppuration, and obscure pulmonary pathology requiring further diagnostic study.

Bronchial Obstruction. The changes in the lung produced by an obstructed bronchus were first recognized from a study of the action of aspirated foreign bodies. This action may be compared with the action of valves causing partial or complete obstruction to the flow of air, with a resulting obstructive emphysema or atelectasis, depending on the degree of obstruction. Foreign bodies still play a prominent role in pulmonary pathology, but are often overlooked for weeks, months or even years, when the destruction of the lung distal to the obstruction calls for x-ray and bronchoscopic study.

Bronchial tumors produce findings identical to those of foreign bodies in the bronchi. Benign tumors, adenomas, are found most frequently in women, between the ages of 25 and 45 years, and give symptoms of

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cough, hemoptysis, wheezing, and repeated attacks of pneumonia associated with the acute phase of complete atelectasis. Malignant tumors, bronchogenic carcinomas, are found most frequently in men. The incidence is rising rapidly, and some statistics now place bronchogenic carcinoma second in frequency of malignant tumors in males. The early symptoms of bronchogenic carcinoma are a persistent cough, a wheeze, occasional hemoptysis, atypical pneumonia and discomfort or pain in the chest. Later the cough becomes productive and hoarseness and dyspnea may develop; there is a loss of weight and general debility with a rapid down-hill course. The importance of early recognition of this condition is that surgical resection of the lung, if done early enough, will rid the patient of the carcinoma. Otherwise, life expectancy is six months to two years. A positive biopsy can be obtained bronchoscopically in approximately 80 per cent of cases.

Suppurative Diseases. The principal symptom of chronic broncho-pulmonary suppuration is the constant productive cough. This symptom is often so routine to the patient that he is not aware of it except as it is increased in frequency and productivity with exacerbations produced by upper respiratory infections. The patient's family, however, is usually acutely conscious of the annoyance. With increasingly accurate methods of diagnosis by bronchoscopy and bronchography, the significance of this condition can be measured and steps taken to prevent its progression to actual bronchiectasis, the disease it simulates. Patients with a chronic cough of this type require a thorough smus survey, a bronchoscopy to determine the type of organism or organisms responsible for the infection and a lipsodol study of the bronchs

to note if dilatations of the bronchi have yet occurred. Treatment is determined by the bacteriology of the secretions aspirated from the terminal bronchi. Autogenous vaccines are of considerable benefit in some cases, while the use of intravenous arsenicals such as neoarsphenamine and mapharsen are specific for infections due to the fusospirochetal group.

Bronchiectasis is a disease characterized by pulmonary suppuration complicated by one of several types of bronchial dilatation. The advanced bronchiectatic patient presents a classic picture. His bloated, pasty appearance, barrel chest, clubbed fingers, dyspnea and constant cough which is frequently productive of large quantities of foul muco-pus, make him a social outcast. Occasional hemoptysis from oozing granulations or ulcerations adds to his discomfort, debility and apprehension. There is frequently an associated pansinusitis. Repeated pulmonary infections occur with fever, pleuritic pain, malaise, and signs suggestive of pneumonia as a result of bronchial obstruction and retention of secretions. As a rule, the patients are better in summer than in winter, and may be entirely free of the cough until an upper respiratory infection early in the fall causes reinfection of the

The severity of symptoms, however, is dependent upon the degree of bronchial dilatation and pulmonary infection. Some patients can evacuate the bronchial tree by paroxysms of cough in the morning and evening, and are relatively free of symptoms during the remainder of the day. Others complain only of the loose rattling cough, and in the so-called dry bronchiectasis the only symptom may be the occasional hemoptysis.

Almost every field of medicine enters into the treatment of the bronchiectatic patient. His general resistance must be increased in order that he may better handle the frequent inter-current infections. This includes rest, high caloric, high vitamin diet, strict attention to oral hygiene, and thorough eradication of sinus pathology. Early recognition and removal of foreign bodies, dilatation of bronchial stenoses, bronchoscopic aspiration of areas of pulmonary suppuration and suppurative bronchitis aid in preventing the development of this disease.

The active treatment should be directed toward establishing and maintaining adequate bronchial drainage. This can be done by postural drainage, but must be supplemented by the better evacuation of secretions that can be accomplished by bronchoscopic aspiration. In the advanced case this is particularly indicated as a palliative procedure, while in the case of pre-bronchiectatic atelectasis it will arrest the process and prevent further destruction. Vaccines prepared from bronchoscopically obtained secretions are of considerable benefit in some cases. In unilateral and even in some bilateral cases lobectomy gives complete and permanent relief of symptoms. Lobectomy or pneumonectomy are the most important adjuncts developed for the treatment of this disease in recent years.

Lung Abscess, non-tuberculous, is a localized suppuration of pulmonary tissue associated with cavity formation, which may be found anywhere throughout the lung tissue. The presence of a fluid level depends upon whether or not bronchial or external drainage is established,

Because of the serious nature of this disease, internist, surgeon and bronchoscopist together should regulate the course of therapy. Postural drainage aids many patients, and they learn to lie in the position which best evacuates the cavity or cavities. However, in the markedly debilitated patient with large quantities of pus, it may be overdone. Neoarsphenamine, whether or not fusospirochetal organisms have been demonstrated, generally aids in reducing the foul odor of the sputum.

Bronchoscopy, both for diagnosis and treatment, is definitely indicated. Aspiration of secretion, dilatation of stenotic bronchi leading to the abscess, and removal of obstructing granulation tissue from the bronchus can be accomplished in this manner. Bronchoscopic lavage of chronic abscesses has been found by some to be of considerable benefit. These procedures can all be done under local anesthesia in adults and without anesthesia of any kind in children.

In acute cases, drop in temperature, reduction of cough, and marked general improvement of the patient following the establishment of adequate bronchial drainage of the abscess cavity are most striking. Surgery should not be delayed, however, in those cases which do not show a fairly prompt response to these more conservative procedures.

Postoperative Massive Collapse of the lung is the massive atelectasis due to the obstruction of one of the main bronchi by thick, viscid, muco-fibrinous secretion, and may follow any surgical procedure. Important etiologic factors are those which tend toward an increase in the production of mucoid secretion by the tracheobronchial mucosa, associated with those which aid in the stagnation of these secretions by retarding the cough reflex and the expansion of the chest.

The first symptoms usually occur twenty-four to fortyeight hours after the operation, beginning with chest pain and a persistent, somewhat productive cough which the patient attempts to suppress, because of both the pain at the site of incision and the chest pain. Respiration becomes shallower and more rapid, soon being definitely labored. This may progress to cyanosis. There is a correspondingly rapid rise in the temperature, but the pulse rate does not rise proportionately. The sputum at the onset is usually scanty; it is thick, tenacious, glossy or white. Later it becomes purulent.

The physical findings, essentially, are the shift of the heart and mediastinum to the affected side, dulness, limitation of motion, and elevation of the diaphragm. Breath sounds change rapidly, depending on the amount of obstruction and whether a coughing spell dislodges secretions. They may be entirely absent, suppressed, or bronchial in character, depending upon the existence of partial or complete atelectasis.

The roentgen ray findings are of greatest importance and consist essentially of the three cardinal signs of an atelectatic lung, namely: (1) the marked shift of the heart and mediastinum toward the affected side, (2) the elevation of the diaphragm on the affected side, and (3) the increased density of the involved lung. There is, of course, a compensatory emphysema of the opposite side.

The oft-repeated statement that this condition is due to a plug of mucus in a main bronchus does not adequately describe the pathology. There is, instead, a production of thick, viscid, tenacious secretion throughout the entire tracheobronchial tree, almost as much being found on the unaffected as on the collapsed side. The bronchial mucosa is little changed in the early stages of this condition, and there are relatively few bacteria in the secretion. Later, the secretion becomes purulent and foul smelling because it has been an excellent culture medium for organisms. A purulent bronchitis develops which may progress to lung abscess or bronchiectasis, or to a fatal termination as the patient drowns in his own secretions.

Postoperatively, certain factors are of great importance both prophylactically and therapeutically. The common practice in recent years of hyperventilating the lung immediately after completion of the anesthetic seems to be of utmost benefit. The use of carbon dioxide and postural changes every two or three hours, day and night, should some chest symptom arise, is definitely indicated. Certainly the use of carbon dioxide is of more value than the administration of oxygen, because the carbon dioxide stimulates more active tespiratory action, which tends to displace the obstructing secretion. Oxygen, on the other hand, allows the patient to obtain the same amount of pulmonary exchange on shallower respiration. Obviously, this is to be avoided, but the administration of oxygen to a dyspneic, eyanotic patient is too frequently the first step taken and, unfortunately, appears to be rational.

The use of a tight abdominal binder, especially in a case of an upper abdominal operation, further limits the respiratory excursions and increases the incidence of collapse. Sedatives and atropine should be withheld. Bronchoscopic aspiration of the obstructing secretions, when these methods fail, should be employed without hesitation. On introduction of the bronchoscope through the larynx, one is impressed by the tremendous amount of secretion lying in the traches and both bronchi. Because of its viscosity it is aspirated with difficulty; bur, by using an aspirating bronchoscope and an independent aspirator, more secretion can be removed in a minute or two than the patient can cough up in several days. The secretion, if the aspiration is done shortly after the onset of the collapse, is white, very thick, viscid and tenacious, and it usually clots in the collecting tube. It contains a great deal of fibrin but very little pus and few bacteria.

The change in the general condition of a patient following bronchoscopic aspiration is often as striking as that seen following trachoromy. The immediate relief is reflected in the temperature, pulse and respiration curves. Physical findings and roentgen ray show a rapid return to normal, although the cough continues to be productive for a few days. Should there be a tendency toward replugging, however, one need not hesitate to do repeated bronchoscopic aspirations. Asthma. The bronchoscope can be used to aspirate obstructing secretions in asthmatics to give them marked relief if symptoms are caused by bronchial obstruction. Moreover, inspection of the tracheobronchial tree may yield considerable information of diagnostic significance.

Obscure Pulmonary Letions. Under this heading may be mentioned certain indications for bronchoscopy of a strictly diagnostic character. Bronchoscopy is obviously contraindicated in cases of gross hemoptysis, but should be done to establish a diagnosis in cases of occasional hemoptysis after the sputum has been found negative for tubercle bacilli. The thin stream of blood frequently may be followed to its source, and a small tumor, ulcer or inflammatory area found there to account for the hemoptysis. Similarly, a wheeze or a constant cough of undetermined etiology is an indication for bronchoscopy. Cough is a symptom, and its cause must be investigated, not merely covered by cough mixtures. Bacteriologic examination of the aspirated material may reveal a yeast or fungus infection nor demonstrable in the sputum.

In closing, some of the newer phases of bronchoscopy may be mentioned. Pulmonary tuberculosis was long considered a contraindication to bronchoscopy. It is still true that the uncomplicated case of tuberculosis does not require bronchoscopy either for diagnosis or treatment, and when the sputum of a patient is found to be positive, findings other than the actual pulmonary lesion itself are necessary to indicate the procedure. However, in recent years an increasing number of tuberculous lesions of the tracheobronchial tree have been recognized. These require direct inspection in order that diagnostic phases can be clarified and endobronchial therapy instituted. Occasionally the diagnosis of tuberculosis is made by examination of the bronchoscopically aspirated secretions even though previous sputium tests were negative.

Ulcerations of the mucosa and cartilages of the tracheobronchial tree comparable to the tuberculous ulcers seen on the epiglottis are frequently the source of positive sputum when a good collapse of the parenchymal lesion has been obtained. Cauterization of these lesions through the bronchoscope hastens the healing process. A tuberculoma within the lumen of the trachea or bronchi may produce no signs or symptoms other than a wheeze, but it may become large enough to obstruct a major bronchus or the trachea and, consequently, produce dyspnea, due to obstructive emphysema or atelectasis. The removal of these tumors, either by forceps or cautery, is indicated to keep the airway patent and to prevent a suppurative process from developing below the obstruction. Similarly, tracheal or bronchial obstruction may develop by pressure from outside the lumen, due to a tuberculous enlargement of the hilar glands. This is fairly common in infants and children. Occasionally a gland ruptures into the bronchial lumen. Finally, the general thickening and distortion of the walls of the trachea and bronchi, produced either by healing ulcerations or contractures associated with the healing parenchymal lesion, is seen. The various collapse therapy procedures, especially pneumothorax and thoracoplasty, likewise cause a marked distortion of the bronchi. This is occasionally so marked that stenosis of a major bronchus occurs, producing a collapse of the lung distal to the obstruction which, if present over a long period of time, produces bronchiectasis.

Biplane Fluoroscopy. The removal of foreign bodies from the costophrenic angle or from upper lobe bronchi has always been one of the most difficult foreign body problems. Within recent years the development of the biplane fluoroscope has made it possible to remove a large percentage of these foreign bodies. The entire bronchoscopic procedure is guided in two planes by the fluoroscope. In a similar manner, forceps may be guided to a peripherally lying pulmonary tumor to obtain tissue for biopsy.

Bronchoscopy in Newborn Infants. In infants a day or two old, the mechanisms of bronchial obstruction are identical to those produced by the aspiration of foreign bodies. However, because of the small caliber of the bronchial tubes of infants, a very slight obstruction causes gross pulmonary changes which will endanger life.

In acquired atelectasis, the principal etiological factor mentioned so commonly in obstetrical textbooks is the aspiration of amniotic fluid and mucus during the passage of the infant down the birth canal. Bronchial suction with a catheter is almost a routine procedure, and it should be employed especially if mucus can be heard gurgling in the trachea. The use of the catheter is not without trauma, and one must constantly keep in mind the delicate nature of the larynx. More recently, aspiration by direct method, exposing the larynx with a laryngoscope and extending the aspirator through it, has given

better results. One clinic suggests this as a routine procedure even before the child cries, aspirating all secretions from the mouth before they can get into the trachea and further into the alveoli. Bronchial exudates due to infective processes produce similar changes. These are characterized most outstandingly in cases of laryngotracheobronchitis in which frequent attacks of bronchial obstruction are one of the most typical features of the disease.

Bronchial obstruction due to compression from without the bronchus is occasionally caused by pressure from an enlarged heart or a congenital anomaly in which one of the great vessels crosses a main bronchus. We have observed a number of these cases recently, together with cases of bronchial obstruction caused by congenital bronchial webs. Dilatation of the web resulted in immediate relief of symptoms in one 24-hour-old infant.

#### SUMMARY

1. The bronchoscope serves as a speculum to permit the direct inspection of the tracheobronchial tree of a patient of any age.

2. Indications for bronchoscopy, which were formerly limited to the extraction of foreign bodies, have broadened so that now bronchoscopy is an accepted routine aid in the diagnosis and treatment of bronchial obstruction, suppurative diseases of the bronchi, and in the investigation of obscure pulmonary lesions. It is an addition to the armamentarium of the physician studying diseases of the respiratory tract, and flot a substitution for other procedures.

# Fatigue as a Symptom in Depressed Patients

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Y fatigue syndrome we mean that group of symptoms complained of by patients who experience physical or mental depletion, or both. In the weakness associated with depressions we find two factors operating. These are psychomotor inhibition, and hypoglycemia.

Psychomotor inhibition is one of the cardinal symptoms of mental depression. By definition, "inhibition" means holding back, checking, restraining, or hindering. Patients suffering from psychomotor inhibition complain of feeling tired, of not being able to get started on their daily tasks, and of an abnormal inclination to procrastinate. They make up their minds that they are going to do a certain thing but they never seem to get to it. Everything seems too big for them. The housewife tells us that daily chores which formerly were performed with a routine automaticity now loom up as jobs impossible of accomplishment. The businessman tells us that he cannot get started on the mass of routine material that awaits him when he sits down at his desk in the morning. In most patients this inhibition is worse in the morning.

and, in spite of the fact that they may sleep well (with or without sedatives) they awaken in the morning not refreshed. In many cases this inhibition tends to diminish as the day progresses, and patients frequently say that if they always could feel as well as they do toward evening they would not be consulting a doctor. One of the key questions asked a patient who complains of fatigue should be "what time of the day do you feel the most tired?" If the answer is "in the morning, but toward evening I always begin to feel better," we suspect immediately that the patient is suffering from some form of depression. With others, however, the inhibition persists through all the waking hours and they say that they are "all tired out." From an examination of the patient's history it soon becomes obvious that work in and of itself does not lead to this chronic condition which the patient calls weakness. Neither is the feeling relieved by rest. It is a sort of spurious fatigue—a true psychomotor inhibition which is misnamed "weakness."

The pathogenesis of psychomotor inhibition is not known. We feel that it is purely psychic in origin—a

psychic retardation that makes it impossible for the patient to accomplish ordinary things without expending much more effort than is ordinarily required. Special analytical techniques such as the Rorschach method show that there is a decrease in intellectual energy but no disorganization of the intellect itself. It is as if the machinery of the personality were intact but the psychological voltage were not sufficiently strong to drive the machine. The important point is that it is not sheer laziness, and that it will not respond to threats, scoldings, and pep talks so frequently administered by families, friends, and, alas, sometimes by the family physician.

The treatment of psychomotor inhibition which is erroneously interpreted as fatigue inheres in the treatment of the depression of which it is a part. The first important point is to avoid intensifying the patient's already present guilt reactions by threats and imprecations. Even long before he discloses his condition to anybody else the patient has communed with himself and has come to the conclusion that he is "no good." This creates a guilt reaction which begets more psychomotor inhibition. Therefore I believe in permissive therapy. The first step is to give the patient permission to be sick. Knowledge on his part that at last he has found somebody who realizes there is something really wrong with him is, in and of itself, of great therapeutic importance. Next, the patient should be put on a rigid activity schedule and made to follow it. He should retire and rise at exactly the same time each day. He should lie down for exactly one hour after the noon meal, and he should go for a walk at exactly the same time every morning and every afternoon. The length of these walks should be systematically increased according to an exact schedule until the patient is walking three miles a day. At first, work and social activities are interdicted but later in the program they may be taken up gradually. Psychotherapeutic interviews either daily or three times a week are of the utmost importance. Our discussion today does not include the psychotherapy of fatigue.

Various drugs have been recommended in the treatment of fatigue associated with depressions. The one most frequently referred to is Benzedrine Sulphate and, more recently, dexedrine sulfate. I regret to say that, in my experience, the results of treatment with these drugs have been disappointing. However, it does no harm to try giving a patient 5 or 10 mg. of benzedrine sulfate, or dexedrine, upon arising and repeating the same dose four hours later. Sometimes patients feel better when taking it. In some cases I have given it intravenously but can not see any particular advantage in employing this route of administration. Another drug which has been widely used in the treatment of the psychomotor inhibition is opium. I have found this useful in a large number of cases, and 1.00 cc. tincture of opium can be given three or four times a day over a period of several weeks without causing addiction. A high vitamin intake, intravenous injections of large doses of thiamin chloride, intramuscular injections of the various iron and arsenic tonics all have a very limited usefulness. On the whole, the results of chemotherapy alone in depressions have been none too encouraging. Nevertheless, drugs can be

considered a valuable adjunct to the other therapeutic modalities at our disposal for the treatment of these conditions, although it must be remembered that they are only adjuncts. The same applies to the various forms of shock therapy.

The second factor operating to cause fatigue in depressed patients is a derangement in carbohydrate metabolism which results in a state of more or less chronic hypoglycemia. The brain is dependent for its normal functioning upon a carbohydrate substrate,1 an adequate supply of oxygen,2 and various enzyme and coenzyme systems.3 A disturbance in any one of these constituents interferes with brain metabolism and, therefore, with brain function. Carbohydrate is the preferred foodstuff of normally functioning brain tissue, although the exact way in which it does its work is not known. Symptoms of hypoglycemia depend more upon the rapidity of change in the concentration of blood sugar than the actual amount of sugar in the blood. Thus it is possible for a patient's blood sugar gradually to be lowered to abnormal levels without producing any signs whatsoever.4 Therefore, simple determinations of the fasting and nonfasting blood sugars do not always give us a clue as to whether or not hypoglycemia is present. It is not so much the absolute level of sugar in the blood as it is the speed with which the blood sugar level has been lowered. Unless one is aware of this fact many cases of hypoglycemic fatigue will be missed. As a matter of fact too much reliance should not be placed upon the glucose tolerance curve. In many cases even when the glucose tolerance curve appears to be normal, I have administered orange juice and sugar to patients and they have responded with remarkable improvement.

For many years it has been known that pancreatic adenomata, hepatic disease, dietary insufficiency, endocrine dyscrasias, and vitamin deficiencies might cause hypoglycemia. In addition to these well known types, I believe that there also is a psychogenic hypoglycemia. Rennie and his co-workers 3 report a number of cases of chronic hypoglycemia accompanying mental depressions. Some of these patients had recurring attacks of depression, and with each attack showed symptoms that were indubitably hypoglycemic in origin. Curiously enough, the hypoglycemic episodes in these patients were usually postprandial. Treatment of the disorder was focused on the personality disturbance and when the depression lifted, the hypoglycemic symptoms disappeared. Flat glucose tolerance curves became normal when the personality disorder was adjusted. Here we see but another one of the numberless examples of how the emotional state of an individual can be reflected in somatic function. One need not go into the tremendous psychogenic factor in the genesis of peptic ulcer, for instance.

In order to understand the pathologic physiology of psychogenic hypoglycemia, let us briefly review what is known of the neurophysiology of the pancreas. It has been shown a that stimulation of the right vagus nerve in animals results in a lowering of the blood sugar level if the pancreatic vein is not ligated. Ligation of the pancreatic vein prevents lowering of the blood sugar level by vagus stimulation, and this can be interpreted to mean

that the change in concentration of blood sugar following stimulation of the right vagus nerve is due to an increase in the secretion of insulin. It has also been shown<sup>7</sup> that in rabbits, drugs which stimulate the parasympathetic nervous system (vagus) produce a fall in the blood sugar level. Now, the thalamus is the cerebral center for our emotional reactions, and in the thalamus there also is a center which, through the vagus mechanism, stimulates pancreatic secretion of insulin.8 Therefore, it is understandable in what manner mental depression can result in chronic hypoglycemia with consequent symptoms of fatigue, tension and irritability. This is what I have referred to as "psychogenic hypoglycemia." It may be the explanation of those reported cases of "chronic functional hypoglycemia" in which none of the organs show any pathologic changes at autopsy.

The dietary management of fatigue resulting from psychogenic hypoglycemia is sometimes difficult. Some patients gain strength when given two teaspoonfuls of sugar in eight ounces of orange juice four times a day. Sometimes I also prescribe small doses of ephedrine sulfate, but this is not always necessary. On the other hand, some patients experience an increase in their hypoglycemic symptoms when taking orange juice and sugar. I believe that in these individuals the pancreas is abnormally labile. In such cases the procedure suggested by Portis 7 may be given a trial. According to this method, a diet high in protein, moderately high in fat, and relatively high in carbohydrate is given. The proportions are P. 141, F. 127, and C. 253. This gives 2719 calories. Deaminization of the protein in the liver takes place slowly and the carbohydrates are given in complex form so they, too, break down slowly. In this manner the impact upon the pancreas is much lessened. As a consequence, pancreatic stimulation is not so strong, and the resultant output of insulin is reduced. This protects the patient against hypoglycemia. In addition to this type of diet the patient is also given 1/200 to 1/150 gr. atropine sulfate three times a day one-half hour before meals. This tends to inhibit the action of the vagus, thus reducing the amount of insulin secreted by the pancreas. I have used this treatment in a fairly large number of cases and, while I have not tested the results statistically or run a control series, I am sure that a number of patients have been benefitted by it. One of our leading psychoanalysts, Franz Alexander, 10 discussing this condition in a recent communication reports the case of a

45-year-old married woman who was suffering from periodic attacks of diarrhea, headaches, and overwhelming fatigue. The patient's diarrhea reacted favorably to psychoanalytic treatment but the fatigue which the patient called her "pernicious inertia," resisted the psychoanalytic approach. Suspecting that the fatigue was on a physiological basis metabolic studies were made and a flat glucose tolerance curve was found. The diagnosis was "relative hypoglycemia due to hyperinsulinism." The patient improved rapidly under the atropine and diet management described by Portis and Zitman. Dr. Alexander goes on to say "in all cases the physical fatigue improved or disappeared completely under medical management and psychotherapy. In almost all cases the disappearance of the fatigue syndrome brought the underlying emotional situation more sharply into consciousness and facilitated the psychotherapeutic approach to the basic personality problem. In all cases the disappearance of fatigue counteracted the regressive, escaping tendencies of the patient, and in the majority it created a more optimistic outlook."

In conclusion I wish again to emphasize the fact that fatigue is but one of a number of symptoms in depressions. Treatment must not be focused on any single symptom but must include in its scope the entire clinical picture. This means that we cannot rely upon drugs alone, but must also employ rational psychotherapy, physiotherapy, diet, occupational and recreational therapy, and carry out an intelligent management of the patient's life situation as a whole.

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#### EXPANDING FACILITIES AT UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

With all the post-war planning no phase is more exciting than the plans to expand our educational facilities. These have gone even farther in Britain than in our own country but there is no doubt that as rapid strides will be made here. In the medical school of the University of Minnesota Dr. Diehl has announced that a wide increase in the staff is expected and that the present accelerated training program will be continued; that the building program includes a library, a school of public health and the Mayo Memorial. A school for postwar refresher and specialized courses for the more than 500 Minnesota doctors now in service is being discussed.

#### Malaria

Medical Observations in South China and Notes on the Health Situation in an Internment Camp Under the Japanese

> Chester W. Lawson, M.D. Glasgow, Montana Part I. Malaria

ALARIA is a disease in which I have taken quite a personal interest, because during our four and one-half years' stay in South China it was acquired first by my one-year-old son, then by my-self, and finally by Mrs. Lawson. Because it is a disease which is coming to have some practical importance to the medical profession here in Montana, I propose to spend most of the allotted time in discussing it.

Until 1941 the United States of America rested quite secure, apparently, depending upon geographical isolation as protection from political and military peril from overseas. The present war has upset this isolation. A parallel may be drawn in respect to disease. Before the war, we in the northern states saw only a rate case of malaria. To recall the only one that I remember in four years of practice, a workman on the Fort Peck dam in 1936 suffered a broken leg. A day or so later he developed a chill and a spike of fever up to nearly 105°. Malarial-parasites were found in the blood smear. He had lived in southern Illinois but did not know that he had ever had malaria.

In contrast, having now completed four months of practice resumed in the small city of Glasgow, Montana, I have seen four cases of malaria in men returned from overseas. It is said to be the most important disease with which mankind has to contend, and "according to a recent estimate 800,000,000 people suffer from this disease." The barrier between us and this huge reservoir of disease is being broken down by the war, and by rapid means of travel. The effect, trifling now, will grow as millions of the armed forces return from the South Pacific, India, China, Burma, North Africa, Sicily, Italy, and later other areas in all of which malaria is endemic.

What are the consequences? First, all of these people, once infected, are subject to possible recurrences of greater or less frequency during a period of some years after leaving malaria-infested territory. These recurrences and original attacks may simulate other diseases and complicate surgical procedures, childbirth, etc.

Second, an original attack may not occur until the patient returns to this part of the country. When members of the armed forces and others enter an area where malaria is prevalent, it is common practice to give routinely enough anti-malarial drugs to prevent clinical evidence of the disease from appearing. This is important to prevent morbidity at a critical time. But this does not prevent the person's acquiring the infection, which remains latent as long as he is taking the drug, and usually a while longer. When he leaves the malarial country, naturally the dosing with anti-malarial drugs is stopped, and after a week or two, or longer, he may have a sud-

den attack of malaria. Thus one of the patients I saw in Glasgow told me that he reached San Francisco without having ever known that he had acquired malaria in the South Pacific. Just arrived, he was suddenly taken severely ill with high fever and soon became unconscious. He was rushed to a naval hospital, the correct diagnosis made, treatment instituted, and he recovered. I have been told that a somewhat similar case arriving at an eastern port died before a correct diagnosis was made. This raises the question of the different types of malaria. I formerly had the impression that malaria was easily diagnosed clinically: a sharp fever, apparent recovery, then a return of the fever in one or two days, etc. In Canton, this type was the exception rather than the rule. Most of the cases I saw there were the so-called malignant sub-tertian type, rarely giving the classical picture of malaria. I understand that this type is quite widespread in both the South European and Pacific theaters.

Another effect of malarial infection is said to be to provoke falsely positive Wassermann and Kahn tests.<sup>2</sup> I have not observed this myself.

A danger which gave me much concern in China, however, and which is bound to become more and more of a problem here, is the likelihood of transmitting malaria by means of blood transfusions. A donor does not have to be suffering from a clinical attack of malaria to transmit it when his blood is given to another. It may have been latent for years, or he may never have had a definitely recognized attack. This means for practical purposes that all of the millions of Americans who will have lived in malarial areas during these years are eliminated as safe blood donors for an indefinite period of years. This is said to apply even to refrigerator-stored blood. I have seen no data as to whether it applies to plasma or not. An officer in the army medical corps told me that it was his opinion that there was no fear on that score from the use of dried plasma.

A fifth possible consequence of the return of many malaria-infected persons to this part of the country is that the infection may be carried to other people by mosquitoes, the natural vector. Dr. Kılbourne, epidemiologist of the Montana state board of health, has told me that anopheles mosquitoes have been found in Montana. To quote Beckman: "after the war (World War I) the return of troops and the interchange of people caused its (malaria's) reappearance in many places long free of it: England, Germany, Russia (one of the worst epidemics in history), far up in the arctic at Archangel." 3

The details of diagnosis, clinical forms, and treatment are not within the scope of this paper. My brief bibliography and the bibliographies given by the sources I have indicated, will guide one who desires a more exhaustive study.1,4,5

However, the plan of treatment which I have been persuaded is most reasonable, is as follows: Here, in non-malarial country, treat only the acute attack. For the first attack, or recurrence, give atabrine, to the average adult 11/2 grains (0.1 grams) three times daily for five to seven days, only. After a four-day rest period give plasmochin 1/6 grain (0.01 grams) three times daily for five days. Then wait until if and when the next attack occurs. In this event, give quinine, if it is available, 5 grains (0.3 grams) three times a day for one week. In addition, either concurrently with the quinine or following it, give plasmochin 1/6 grain (0.01 grams) three times a day for five days. The atabrine and plasmochin should not be given concurrently, and not in over-dosage. Even that dosage may give definite yellowish discoloration of the skin, which may persist for several weeks, and is distinguishable from jaundice by the fact that the sclerae do not become discolored.

One toxic effect sometimes noted following the taking of atabrine in even this dosage is a manic tendency. I noted this in my own case following a treatment of a mild recurrence in 1942. I began giving birth to more ideas than I have ever had before or since. Two hours sleep a night was all I seemed to have any need for, there was no feeling of fatigue, and everything that occurred seemed funny. (Perhaps I should take atabrine often!) However, I had some insight into the condition, rested for several days, and it passed off. I mention this because I have noticed a tendency among many malaria patients to take over-doses of the medicines used. With the present shortages of these drugs, they are available on prescription only, and the responsibility of preventing over-use rests with us.

#### PART II.

# MEDICAL OBSERVATIONS IN SOUTH CHINA

Hydatidiform mole was seen with striking frequency in Canton. It is reported to occur once in every 2500 to 3000 pregnancies in America, yet five to seven cases were admitted and operated upon each year at the Hackett Medical Center in Canton. That hospital is of 120-bed capacity, but the number of confinement cases cared for per year is only 200 to 500. However, due to economic reasons and custom, only a small proportion of the normal obstetrical cases come to the hospital, while, because of the attendant bleeding, probably most of the mole cases do come for treatment. Thus the true statistics are impossible to arrive at, but the incidence is certainly much greater than in America. I did not see chorioepithelioma while I was there, but doctors long on the staff say it has occurred, but not frequently.

Beriberi is of frequent occurrence, and an interesting complication was described in a publication by a woman medical practitioner in Hong Kong; a toxin in the breast milk of mothers suffering from beriberi which poisons babies fed upon the breast, perhaps fatally if persisted in, but from which they recover if they are put on a formula

or furnished with a healthy wet nurse.

Tuberculosis is very prevalent, perhaps due to lack of racial immunity (which the white race has acquired to some degree), to poor hygienic habits (promiscuous expectoration) and to an inadequate economic situation for large elements of the population.

Leprosy was fairly common, was shunned as a venereal disease by the general populace, and the public health attitude, as far as I could observe it in that Japaneseoccupied area during the years I was there, was a complete ignoring of the problem.

Carcinoma of the breast was quite common. The patients usually presented themselves for treatment after the disease was quite far advanced, but even palliative surgical excision gave in many cases good healing and relatively good health for several years.

Bladder stone was very common—kidney stone rare. Epidermophytosis of the feet was so common in that area that it was known in both English and Chinese as "Hong Kong foot."

Appendicitis occurs, but seems to be a little less prevalent than in America. Placenta previa, ectopic pregnancy, benign and malignant uterine tumors, ovarian cysts and cancers were seen with a frequency comparable to that prevailing in America.

Typhoid was prevalent, and cholera fairly common. The dramatic character of the collapse from cholera, and the miraculous appearing response to intravenous

saline is very impressive to a newcomer.

The Japanese authorities vigorously vaccinate the populace against smallpox and give them an inoculation of killed cholera bacteria every three months. Some of the more well-to-do Chinese avoid this "nuisance" by hiring a coolie to take the "shot" for them, then turn over the certificate to them.

#### PART III.

#### Notes on the Health Situation in an INTERNMENT CAMP UNDER THE JAPANESE

For nearly a year after the war in the Pacific began, we were allowed to continue our work in the hospital almost unmolested. Then, in November 1942, we were told that "because of the cruel and inhuman treatment of Japanese in America" is would be necessary to intern all enemy nationals in Japanese-controlled areas. At first all men under 45 in the Canton area (Americans and British) were placed in a camp (actually a former mission compound) under guard and supervision of the Japanese army. Our food was furnished by the army, supplemented by vegetables raised in the garden on the compound, and by purchases which we were able to make through the sergeant in charge, by means of funds which we had brought with us, plus a loan of eight U. S. dollars per month per person obtained from our government through the Swiss consul in Canton, acting as an intermediary power. Being able to eat rice three times a day for months on end, and with the diet supplemented as described above, we suffered no deficiency, on the average,, for this six and one-half months period. The only major illness during that time was when one of our fellows developed acute appendicitis. After some hesitation and red tape, he was finally removed from the camp in

the custody of a Japanese army doctor, taken to a military hospital, and the appendix removed. Fortunately this man was the one internee in our camp who knew how to speak Japanese. The surgeon asked him if the appendix of a white person was the same as that of a Japanese, as he had never before operated upon a white man. The operation was done under local, but the patient says that he noticed little or no anesthetic effect. On the sixth day postoperative he was returned to us at the camp. During that interval he had had no bath, and nothing had been done to disturb the bowels, either preoperatively or postoperatively. Yet his recovery was uneventful. I was reminded of Dr. J. M. T. Finney's statement in his autobiography, Surgeon's Life, that he always heaved a sigh of relief when he and his family left Germany after a visit, that they had not had to have any surgery done in that country. Not that their operating ability was not great, but that their consideration for the comfort of the patient was so slight. Well, Japan has been a great student of Germany, medically as well as militarily. They say that we are soft and degenerative, while they are vigorous and "can take it."

Later we were moved to a camp in which our families and others than men of military age had been placed. Here the food was also plentiful, but, though probably luxurious by Japanese standards, was hard to take by some of more delicate appetite, so that some cases whose normal weight was 140 pounds or so, lost 40 or 50 pounds over a few months. Food furnished, if inedible, is thus in effect insufficient. Doctors and dietitians from some of the other larger camps in Japanese-controlled areas, where food ration was stricter, said that about 1800 calories per person per day was furnished. In some as, especially in the Stanley camp in Hong Kong, beri-· deficiency states, as well as marked loss of mon. Vitamins and other supplies sent

by the Red Cross helped to alleviate this situation at least

One death occurred in our camp-unavoidable-due to cancer of the stomach, with metastases. We doctors in the camp had first-aid supplies which we had brought with us. When the condition was suspected in the man above mentioned, the camp authorities made arrangements for him to be taken to a nearby hospital in charge of a German doctor. He also was allowed consultation by a capable Chinese surgeon from the Hackett Medical Center. (Otherwise we were allowed no contact with the Chinese after we entered the camp). He was given the choice of remaining at the hospital or returning to the camp. His wife was in the camp and he elected to return. When he died, arrangements were made for an autopsy, cremation, and the ashes are in care of the Swiss consul for burial after the war.

- 1. Malaria was discussed, pointing out its increasing appearance in this northern area of the United States, the importance of its recognition, the effect which it is said to have in occasionally causing the serology to appear positive for syphilis, the danger of spreading malaria by blood transfusions, and the possibility of its transmission by mosquitoes in this area. A plan of treatment is given, and toxic effects, especially in overdosage, warned against.
- 2. Several diseases that came to attention in South China are listed, with brief discussion.
- 3. The food situation, and other factors affecting health in an internment camp under the Japanese are discussed briefly.

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#### Roseola Infantum

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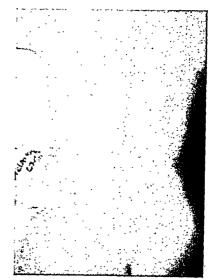
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enough to realize that measles, like lightning, doesn't strike in the same place very often; and they object to the internment of their child for any one contagious disease on more than one occasion, sensing that at some time their doctor made a mistake in the diagnosis.

Perhaps the error goes back further than that, even to medical school. Personally I was a little too full of pityriasis rosea when I graduated and not saturated enough with unimportant allergic, toxic and mild infectious rashes which are as common as mud and just as confusing. Morbidity and mortality do not always justify importance. "Bread and butter" medicine depends upon the recognition and treatment of common and many times insignificant affections.

In this category one must include roseola infantum,





Roseola Infantum rash on trunk.

one of the most forgotten, least appreciated and commonly misdiagnosed contagious diseases. I have seen well er two dozen cases during the past year and have received histories by the score of previous attacks of "measles" in children who without a shadow of a doubt were victims of this mild exanthem and a physician's unawareness. A review certainly is in order.

#### Roseola Infantum

Roseola infantum is an acute contagious disease found almost exclusively in infants and young children. It was first discovered in 1910 by Zahorsky, who gave it the above name, meaning "the rose rash of infancy." It is also known as exanthem, subitum, or the "unexpected rash." Both titles would seem appropriate.

The disease is very common, reportedly having an incidence not quite as great as for measles or chicken pox.<sup>1</sup> Although endemic in character, I would be prone to believe the incidence is at least comparable with these contagious exanthems were it correctly diagnosed. It has been called measles, scarlet fever, toxic rash, heat rash and eczema to my knowledge, and a few more could probably be added could we but listen in on the consultations. At times, in institutional outbreaks, it becomes epidemic in character<sup>2</sup> and the course of the disease may be altered considerably when appearing in this form.<sup>1</sup> There is no sex predilection. Age is the most important predisposing factor in that 95 per cent of the cases occur under the age of 2½ years and 75 per cent between the ages of 6 and 18 months.<sup>1</sup>

No specific etiologic agent has been discovered but it is assumed to be infectious and mildly contagious. The mode of spread is unknown. The incubation period is probably from eight to fourteen days.<sup>2</sup>

There are no prodromal symptoms. The disease is usually ushered in by a fever which develops suddenly and remains elevated for two to five days. Almost any symptoms accompanying fever in childhood may be present—convulsions, vomiting, colic, listlessness, fretful-

ness, anorexia, etc. There may be a mild coryza or cough. The fever which is characterized by morning remissions not infrequently reaches 105 degrees in the more severe cases. As the disease terminates, there is a critical fall in the temperature, and as the temperature drops or within twenty-four hours after the return to normal, the eruption makes its appearance.

This eruption is typically rubelliform and is fully developed within two to twenty-four hours. It appears on the abdomen first and rapidly involves the rest of the trunk. The face, forearms and legs are usually spared. In general the rash is difficult to distinguish from German measles. The lesions are rose-red macules, 2 to 3 mm. in diameter and at times slightly elevated. They are likely to be sparse but in the more severe cases may be profuse enough to coalesce. Immediately after the rash has fully developed, it begins to fade and almost invariably disappears completely within two days' time. In a few cases the rash is so transient that it could be easily missed. Such cases lead to the deduction that an eruption need not necessarily be present, and it is not too uncommon to care for cases which fulfill all the criteria for the diagnosis including laboratory data and yet never show the least trace of a rash. Naturally any conclusion here is purely speculative.

Laboratory data is not conclusive. Early in the preeruptive stage there may be a mild transitory leucocytosis. Following this, however, the count rapidly returns to normal or develops into a mild leukopenia which is characterized by a relative lymphocytosis. Barenberg and Greenspan <sup>3</sup> found this blood picture so uniformly constant that they believed it might be of definite aid in the diagnosis of modified forms of the disease. Counts performed in my own practice among endemic patients do not bear out this uniformity.

During the course of the disease a number of infections must be excluded. In the pre-eruptive stage almost any disease producing a prolonged remittant fever must be considered. Two clues suggest roseola infantum at this stage:

- 1. The child does not appear critically ill in spite of the high fever.
- 2. There is almost a complete absence of abnormal physical findings.

In the eruptive stage only measles and German measles are apt to cause confusion. In measles the rash almost invariably breaks out at the height of the fever and the temperature falls by lysis after the appearance of the exanthem. Koplik's spots and severe cotyza are the tule. German measles produce little or no fever and in a majority of the cases the eruption is the initial sign. There is enlargement of the occipital and posterior cervical glands. German measles is almost invariably an epidemic disease.

Complications or sequelae to roseola infantum are almost unknown. Treatment consists entirely of attempts to control the fever and irritability with aspirin, sponge baths and sedatives. Management of parental anxiety during the pre-eruptive stage seems to be the greatest task.

The following case summaries and charts illustrate the typical course of the infection and the confusion that might exist.

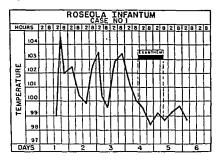
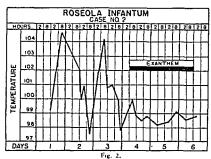
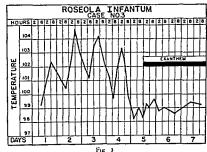


Fig. 1.

Case 1. A boy, age 2 years, developed a rather sudden fever of 104.5° (fig. 1) in the late afternoon. His mother was under treatment in the hospital at the time because of a severe streptococci throat infection. The child had had no contagious diseases. Physical examination revealed only a questionable mild pharyngitis. He was hospitalized and started on 3% gr. of sulfadiazine every four hours. Admission w.b.c. was 8,400. Polymorphonuclears numbered 65 per cent and lymphocytes 35 per cent. On the following day there were no abnormal physical findings and the sulfadiazine was discontinued. On the morning of the fourth day the temperature dropped to normal and he broke out with a light pink macular rash, limited entirely to the trunk. The rash faded within twenty-four hours. Symptomatic improvement was immediate.



Case 2. A baby boy, age 11 months, was examined during the early afternoon in the course of a monthly well-baby visit. There were no abnormalities except for a mild seborrheic eczema of the scalp, forehead and upper face. At 8:00 P.M. on the same day the baby's temperature rose suddenly to 104.6° (fig. 2) and he became extremely irritable. Re-examination on the following morning revealed no cause for the fever. The w.b.c. was 8,000 with polymorphonuclears numbering 60 per cent, lymphocytes 38 per cent and eosinophiles 2 per cent. Hospitalization was effected. Only symptomatic treatment for his fever was ordered. On the evening of the third day the temperature dropped to normal and the following morning the nurses noticed a macular rash, prominent over the abdomen and back but also present on the lower face and upper arms. The sebortheic eczema in the meantime had almost entirely disappeared. The roseola rash faded slowly but was not visible by the end of the second day. The baby's disposition improved remarkably after the exanthem appeared.



Case 3. A baby girl, 1 year old, was examined one evening because of the sudden development of a fever, anorexia and irritability. Past history was negative. Physical examination revealed no cause for the symptoms. Rectal temperature was 102.4° (fig. 3). She was given aspirin and phenobarbital and the temperature dropped during the night but rose to 104.8° the following after-

noon and she was hospitalized. Re-examination for three consecutive days gave no hint as to the cause of the fever. There was no coryza. The w.b.c. ranged from 9,000 to 12,000 and the differentials were just as uninformative. The baby was extremely fussy and refused all solid foods. On the afternoon of the fourth day the temperature dropped by crisis and almost immediately a rather dense maculopapular rash appeared on the entire trunk, face and proximal extremities. The rash on the face and extremities disappeared in twenty-four hours but on the trunk it was visible for almost three days. It was the heaviest, most persistent roseola rash I have ever seen. The humor of both the parents and baby showed progressive improvement following the appearance of the exanthem.

#### CONCLUSION

Roseola infantum is a common mild exanthematous contagious disease which runs quite a constant and characteristic course. Its recognition is rather simple once the practitioner is aware of the fact that there is such a disease entity and has acquainted himself with the chief clinical features.

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## Minneapolis Academy of Medicine

Papers Read at Regular Meetings 1944-1945

#### OCTOBER, 1944 NEEDLE BIOPSY OF THE LIVER F. W. HOFFBAUER, M.D.† Minneapolis, Minnesota

Attempts at needle biopsy of the liver have been made by many investigators since the original studies of Lucatello 1 in 1895. Various methods were employed using various sized needles; small bits of tissue were secured by means of suction applied during the advancement of a needle into the liver. This method has been eminently successful in the hands of a group of Danish investigators (Iverson, Roholm, Krarup 2). They describe a posterior lateral approach, and employ a needle with a serrated cutting edge. Their contributions to our knowledge of the histopathology of the liver have been outstanding. Using this same technic, Dible, McMichael and Sherlock <sup>3</sup> have recently studied the changes in epidemic and other forms of hepatitis. In 1941, Tripoli and Fader 1 proposed the use of the Silverman needle for the purpose of liver biopsy. They advocated an anterior approach, entering the liver beneath the costal

margin at the lateral edge of the right rectus muscle.

On the medical service of the University of Minnesota hospitals, the method described by Tripoli and Fader has been employed for the past two years. The procedure is carried out under local anesthesia at the bedside. If one is careful to anesthetize the parietal peritoneal surface the procedure causes little discomfort to the patient. Entrance into the liver can be detected by noting movement of the needle coincident with respiration. Usually one obtains a piece of liver tissue one to two centimeters in length and approximately 0.8 millimeters in width. This is adequate to prepare routine stains as well as special stains such as for connective tissue, iron, or glycogen. Serious bleeding from the site of the needle puncture in the liver has not been encountered. On the basis of experience to date, 65 cases, it is felt that the method can be safely used in the presence of an enlarged and easily palpable liver. It is not recommended when the liver is of normal size.

To obtain a liver biopsy in the absence of hepatic enlargement, the procedure of laparoscopy is resorted to. Because of the criticism of subcapsular biopsy of the liver, as obtained by the forcep attachment of the Ruddock peritoneoscope, we have employed a modified Silverman needle to secure liver biopsy. This needle, 18 centimeters in length, is similar to the Vim-Silverman needle which is 8.5 centimeters in length. With the peritoneoscope in position and the liver under visualization, the needle is inserted through the anterior abdominal wall and guided into the liver. This method offers the advantage that the

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biopsy site can be selected, and the danger of the biopsy needle entering bowel or gallbladder eliminated. In the presence of carcinomatous metastases in the liver, the chances of securing a positive biopsy of tumor tissue is much greater than by the bedside method. It has the disadvantage that the procedure must be done in an operating room and is therefore more time consuming than the biopsy performed at the bedside. In a series of 20 cases this type of needle biopsy has been carried out. The results to date have been satisfactory.

In cases of hepatomegaly associated with cirrhosis, hepatitis, hemochromatosis, amyloid disease and metastatic carcinoma, needle biopsy of the liver, carried out at the bedside, has been most helpful in arriving at a correct diagnosis. In instances of pericholangitis hepatitis, simulating neoplastic or calculous obstructive jaundice so closely, liver biopsy has been almost essential for an accurate diagnosis.

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#### Discussion

DR. ORWOOD J. CAMPBELL: I have been extremely interested in Dr. Hoffbauer's method of biopsy of the liver. I am sure that he could not have introduced this technic at a time when it would be more readily accepted by the surgeon, than in these days when they are so overworked that they are glad to turn their cases over to the internists.

The liver is an organ which the surgeons have treated with a great deal of respect. It cannot be entirely removed, it is highly vascular and very friable so that suture technics are difficult.

Direct procedures on the liver are concerned with repairing lacerations, the occasional removal of a neoplasm, or the drainage of an abscess. Hemorrhage from a lacerated liver is profuse and the patients are usually in severe shock. However, with better facilities for transfusions it has been found possible to repair the damaged livers and save the lives of patients who otherwise would have died. There are very occasional cases

reported of cysts and certain neoplasms of the liver which have been successfully removed. Primary malignancies and metastatic malignancies, of course, are not amenable to surgical attack.

Liver abscesses may occasionally exist singly or as confluent abscesses in a localized area and thus lend themselves to sur-

gical dramage.

I think Dr. Righer's work in visualizing the liver and thus outlining the number and position of abscesses or tumor masses has contributed greatly in determining the operability and localizing the lesions which may be amenable to surgical attack.

I have had no experience with echinococcus cysts or amebic abscesses of the liver. Amebic abscesses lend themselves well to aspiration. Echinococcic cysts are usually treated by marsu-

pialization.

The most common example of indirect attack on the liver is the relief of biliary back pressure and the consequent biliary cirthosis. The removal of stones is a standard procedure. Shunting of bile through a cholecystenstostomy, or cholecystenterostomy has been the usual method of dealing with biliary obstruction due to malignancy, either in the duct itself or in the head of the pancreas. Technics for the excision of carcinomas of the pancreastic portion of the common bile duct and of carcinomas of the head of the pancreas are being developed and show promise of real success.

Another liver condition in which surgery is occasionally found helpful is circhosis of the liver with portal obstruction. Surgery in this condition is designed to relieve the strain on the portal circulation. The most common method employed is the old and established Talma-Morrison operation in which the omentum is sutured to the abdominal wall and the under surface of the diaphragm and surface of the liver scarified to promote ansatamotic connections with the systemic circulation. If this procedure is combined with a splenectomy the results are often times very beneficial. The ligation of the splenic artery will in itself reduce by 30 per cent the amount of blood which must return through the liver.

The eck fistula is rarely attempted for portal obstruction, both because of technical difficulties and because the patient does not tolerate well such a complete diversion of portal blood.

We surgeons welcome the more accurate diagnosis which both Drs. Watson and Hoffbauer are able to give us, thereby confining surgical procedures to those cases in which real good may be accomplished.

DR. F. W. HOFFBAUER (in reply to question regarding seri-

ous hemorrhages): We have not had any serious hemorrhages from the liver itself. In one case, a large vessel was punctured by over-zealous plunging of the needle completely through the left lobe of the liver. This necessitated transfusions and subsequent operation for control of the bleeding. The patient recovered. This procedure should be limited to livers which are definitely large so that one could be sure that one were not entering the needle over two or at most three centimeters, and not go through a thin left lobe. I have had the opportunity to watch the congealing of the blood. It persists in bleeding for 30 or perhaps 60 seconds and then seals off. We have never used cautery. In the experimental laboratory on animals, where carbon tetrachloride has been used, I have never seen fatal hemorrhage occur, and we have never used cautery there. So that I feel where a single needle track is made of a bore no

not clotted by giving vitamin K, or which does not respond to giving vitamin K, the possibilities are enhanced.

I know of only two instances of fatal bleeding, one from this country, in the case of a mediastinal lesion, where the patient bled to death. There are two or three reports of fatal hemorrhage from Bengle in Germany. The Danish investigators who used the portal approach report several alarming hemorrhages but no fatalities, and cautioned against the danger of hemorrhage. We have encountered one or two instances in which hemotrhage was a serious although not a fatal accompaniment.

larger than the 14 gauge needle, the chances of hemorrhage are very slight. Naturally if there is a bleeding tendency, which is

In properly selected cases, serious hemorrhage from the liver has not occurred as a result of needle biopsy. In 20 instances in which needle biopsy has been cartied out at the time of pertoneoscopy, the site of bleeding has been observed. Free bleeding from the site occurs from 30 to 60 seconds and then closes. The depth to which the needle is inserted into the substance of the liver, 3 to 4 centimeters, avoids the larger hepatic vessels located at deeper levels.

I would re-emphasize the need for restricting the use of the bedside biopsy procedure to cases in which the liver is definitely enlarged, well below the costal margin. I have seen one serious hemorrhage occur in an instance in which this precaution was not observed. Needle biopsy of the liver was performed in an individual whose liver was but very slightly enlarged. The needle was passed completely through the time left lobe of the liver and entered a large artery. The resultant hemorrhage was nearly fatal. After multiple transfusions, an exploratory lapacotomy was performed. The surgeon removed a great deal of free blood from the peritoneal castry. The hemorrhage appeared to have stopped; the abdomen was closed after removal of most of the blood. Fortunately the patient made an uneventful recovery.

There are several instances cited in the literature in which fatal hemotrhage has occurred following various types of liver bionsy

It seems wise, therefore, to caution against undue enthusiasin in this procedure. In any instance in which the safety of the procedure is in question, peritoneoscopy would appear to be the method of choice.

DR. S. R. MAXLINER: I think the advances that have been made recently in physiology and physiological chemistry have been astonishing. I have a son who has just completed his freshman year at the University and his teaching far exceeds anything that we had when I was in school. It should be a great help in both diagnosis and therapy

About a month ago I operated on a patient with a gradually increasing jaundice at which time a carcinoma of the ampulla of Vater was found. The common duct was ligated, the gall-bladder anastomosed to the jejunum and the distal portion of the stomach, the first, second and third portions of the duodenum together with the ampulla and head of the pancreas were removed en masse. A Polya anastomosis was done between the cut-off end of the stomach and the small bowel. After removal of the head of the pancreas the remaining portion was ligated and no effort was made to establish continuity between the pancreas and the bowel. For a time there was complete obliteration of pancreatic exerctions but recently he has developed a persistent pancreatic fistula. The patient did well for a time without any pancreatic juice was restored to his digestive tract through a duodenal tube

It has been shown experimentally and clinically that humans can do without a pancreas but in this instance the patient was greatly improved after his juices were returned to his digestive tract.

DR. J S. McCartney: I have had a lot of fun with these needle biopsies from various sources, not only from the liver but I have had some from the prostate and from the thyroid, and so forth. Ordinarily Dr Hoffbauer has given me no clue at all as to what he was thinking about He has merely sent me a piece of the liver and let me go to it and he would tell me afterwards whether he thought I was right or wrong; and it has surprised me sometimes what I was able to tell him. It looks like a small bit of tissue that you get Dr Hoffbauer said in his talk that it was I cm in length and ½ cm in width, but it is actually 1 or 2 mm in diameter. It is small but in many of these biopsies we have a strip of liver that shows us anywhere from possibly eight to twenty lobules, so you can see we get a view of the portal veins, and can compare the various portal passages which are present in the field, note the distribu-tion of the bile and the biliary pigment that is present, the degree of infiltration, the relative amount of connective tissue in the portal passage, and in some of these cases of pigmentary cirrhosis it tells us enough to get as good an idea of the distribution through the lobule as from a piece a square centimeter in size which we ordinarily take from a liver at post mortem. We don't, of course, get any idea as to the relative size of the nodules as we do at post mortem, but we do get plenty with a

favorable biopsy to tell quite a lot as to what the probable future of that liver is going to be.

Dr. Moses Barron: I think that Dr. Watson has done more to clarify conditions of the liver obscured by jaundice than any man that I know of in medical literature. He has opened up new fields in diagnosis by making certain types of what he calls screening profile tests. By using his methods of evaluating the amount of certain products of bile pigment urobilins we find in the urine and in the feces and comparing it with the normal and with each other, we have been able to determine fairly accurately when these studies are made as to whether the condition is one that denotes melanemia, a stone, or hepatitis.

I saw a very interesting presentation of this work done in Duluth. Dr. Tuohy and Dr. Hirschboeck have taken up the work that Dr. Watson has been showing, in that they have made extremely interesting studies of each case of jaundice and then put down those figures as he has here, to get a composite idea of the situation, and in this way they have arrived at diagnoses which might otherwise not have been possible. Dr. Tuohy was highly complimented at the last meeting of the society at Hibbing because of the ability that they have developed in arriv-

ing at correct diagnoses. I think that with what Dr. Watson has done we ought to see if our hospitals can't be induced to make these studies. The deduction seems at first complicated but I think that if we would get the idea across to our laboratories and tell them just what is needed, I know Dr. Watson would help them greatly in suggesting the procedures to follow.

Even the master himself faces difficulties. This presentation tonight goes to show how extremely complicated the whole problem of liver disease is with respect to diagnosis, and especially to form conclusions as to jaundice. Some of the tests usually agree and some will vary, the same as the index. I think that the van den Bergh index allows much for differential diagnosis and many of these tests can be made even in the clinic, the laboratory, or even at the bedside by the practicing physician. What Dr. Watson has done tonight should induce all of us to see if we can make available these various tests in order to obtain these additional clues to our diagnoses. We know that we can get a great deal from physical examination, and can in fact gain even more from the history, but when it comes to many of these cases, the best of us cannot arrive at diagnoses without the help of our laboratories, and so that we may more accurately diagnose liver diseases we must try to persuade our larger hospitals to institute these procedures.

#### DECEMBER 18, 1944, SYMPOSIUM ON ALLERGY

OPHTHALMOLOGY ERLING W. HANSEN, M.D. Minneapolis, Minn.

It may be surprising to think that there is much of allergy connected with the eyes but it is quite a field. I will skip over more or less the skin reactions in the lids because Dr. Laymon will discuss skin lesions. I will call attention to the fact that we do have a great many people who suffer with blepharitis marginalis, which involves the margin of the lid and which in a great many instances turns out to be sensitivity to some type of allergen. Angioneurotic edema causes patients to come in scared to death, their lids all swelled up. This sudden type of angioneurotic edema may be due to contact with drugs, particularly with atropine. Whether these are true allergens, or not, there is certainly hypersensitivity in the tissues. Another cause may be contact with various types of pollens, the type of thing that we have in hay fever, bacterial toxins especially staphylococcus, or to dust sensitivity, or even to food allergies. Some of the cases of blepharitis that I have seen were definitely shown to be due to such foods as eggs, chocolate, milk, and peanuts, etc.

In addition there is involvement of the conjunctiva and cornea which is due to the same type of irritants, and one that we are all familiar with. I don't think anyone will gainsay that the reaction we get from hay fever is due to allergy. Most of the allergic reactions we get externally in the eyes are manifested by intense itching and by mucous secretion rather than by purulent secretion, and by sensitivity to light. In some of the youngsters it is difficult to get the eyes open to examine them.

In addition to these more common things, we have some specific entities such as phlyctenular conjunctivitis, mostly at the limbus and sometimes on the cornea, or both. They for the most part, are due to sensitivity to tubercle toxins, and we see them not so much in cases of open pulmonary tuberculosis as in those people who show some gland involvement. We used to see it with glands in the neck, probably more of the bovine type than the human type of tubercle bacillus, but we do see them also in people who have recovered from tuberculosis, and we see them in attendants at the sanatoria, usually showing positive skin tests and hilar glands. The lesions are just accumulations of lymphocytes, never showing tubercle bacilli. The surface breaks down, causing a shallow ulcer. Sometimes we have a fascicular lesion advancing across the cornea, new blood vessels following in the wake of the advancing ulcer. This interferes with vision because of the superficial scar which follows this particular lesion.

Another condition that should be mentioned particularly in connection with conjunctivitis is vernal conjunctivitis, so-called

because of its appearance in the spring and summer, and due probably in most cases to tree pollens and the earlier grasses. I remember one patient, however, in whom this typical lesion could be produced by eating chocolate. Flat follicles can be seen under the lid, and the condition is characterized by marked itching and photophobia, mucous secretion, and eosinophiles in the secretions. These symptoms usually clear up in the fall and winter, and usually occur in persons 5 to 15 years of age. Sometimes a similar lesion to that seen in phlyctenular conjunctivitis, occurs at the limbus. We have therefore two types of lesions, the plaques on the under surface of the upper lids and the involvement of the conjunctiva at the limbus. After several seasons the plaques on the lid become permanent and may cause irritation to the cornea. It is sometimes necessary to strip the conjunctiva from the lids.

The lens too may react to allergies with resulting cataract. In cases of generalized dermatosis, or so-called neurodermatosis, cataracts are seen in a fair number of patients. This is not so strange when we remember that the lens is formed from ectoblastic tissue; the lens vesicle invaginates from the surface ectoderm, is pinched off and thus it is an actual ecto-dermal structure. This type of cataract is found usually in young people.

The iris, ciliary body, and the choroid may become sensitized unquestionably to an infection. Then in recurrent or chronic infections with the same organism there is an allergic reaction. When toxins in the circulating fluids come in contact with the iris, for instance, the iritis lights up.

Interstitial keratitis usually occurs in children 5 to 15 years of age and is due to congenital syphilis in at least 90 per cent of cases. While there may be direct invasion of the cornea by the spirochete, most of these cases are due to sensitization in uterine life, the corneal involvement appearing in the age group in which we have several other types of allergic manifestations. This severe inflammatory reaction takes place, not superficially but in the deeper structure of the cornea. Blood vessels invade the otherwise avascular cornea. This vascularization and the infiltration cause a marked interference with vision, some of which clears up in time. Finally there is no longer blood in the vessels which however persist, leaving a network which can always be seen with good illumination and especially with magnification. A few of these cases arise from acquired syphilis later in life, and a small percentage are due to tuberculosis. Wessely in Germany has shown that this lesion can be produced by experimentally sensitizing the cornea with foreign sera.

We have two specific conditions which may involve the interior of the eyes: a) the one due to sensitivity to lens protein in which we see a very severe inflammatory reaction in a second eye, and in some cases, where a cataract has been removed from the other eye, so-called endophthalmitis phaco-anaphylactica. July, 1945 - 249

Apparently the tissues become sensitized to the lens proteins or fractions of the lens protein which are present. This has been worked out particularly by Verhoeff in Boston. Sometimes it occurs also in needling operations on congenital cataract. Here we sometimes have to do a discission several times before complete absorption of the catatactous lens and it is on the second or later needlings that reaction occurs. b) The other condition is sympathetic ophthalmia, almost entirely due to injury of the ciliary body and to disturbance of useal pigment. Here we have in the second or sympathizing eye the same type of lesion we have in the injured eye when that has developed a uveitis. It has been shown by Elschnig and Woods and others that uveal pigment can act as an antigen and presumably is the tissue involved. There is probably some other factor that enters into it besides the pigment itself but the fact remains that it is almost always in those cases where there is pigment disturbance in the useal tract. The area of the cibary body is the so-called danger zone. When injuries take place through this region, we get the so-called sympathetic ophthalmitis; fortunately this occurs in only a small percentage of cases.

#### USE OF THE PASSIVE TRANSFER OR INDIRECT METHOD OF SKIN TESTING IN ALLERGIC DISEASES

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One of the inherent fallacies of medical men is their delay in recognizing the value of procedures which sometimes, with less effort, would enhance their ability to diagnose and manage diseases daily met in their practice.

Direct skin testing for so-called atopic allergy was introduced by Blackley." Later the intracutaneous (also known as the endermal or intradermal) method was used to augment the scratch test. The limitations of both are now well established and yet this procedure is used solely by many when determining hypersenstuveness.

It is a generally accepted idea that a positive skin reaction elicited by the direct method of testing indicates that clinical sensitivity to a reacting substance has existed, exists presently or is developing. However, there is teason to believe that some skin sensitivities never were or never will be of clinical significance.

Statistical studies of allergic and nonallergic persons indicate that specific sensitization frequently resulted only in antibody formation in the skin instead of the internal organs. Since the skin sets is specific for skin sensitization, the conclusion is that the skins of at least one-fourth of persons without allergic symptoms of any kind develop antibodies as a result of frequent contact with the allergen, particularly foods. A properly controlled direct skin test always indicates skin sensitivity but not always clinical sensitivity.

Also, in certain diseased states, which are not allergic in nature, unaltered protein may enter the circulating blood through the gastro-intestinal tract and reactions may occur subsequently,

but are usually transient.

Collected statistical studies by Alexander,<sup>1</sup> from many observers of over 30,000 direct tests done, showed that patients with certain allergic diseases developed positive reactions with the following frequency: Hay fever, over 90 per cent; bronchial asthma and vasomotor chimitis, less than 60 per cent; gastroinestinal allergy, less than 25 per cent; urricaria, about 5 per cent. According to Rinkel<sup>3</sup> only about 20 per cent of the foods giving positive reactions by direct skin testing are actually the cause of allergic symptoms.

Allergic patients show local hypersensitiveness in few shock organs. A patient with bronchial asthma may have his anti-bodies deposited only in the bronchi and none in the skin, in

which case the skin will not react.

A skin sensitizing antibody will be present in the blood only when the skin test responds to the specific antigen (allergen), although not all positive skin reactions produce antibodies in the circulating blood. These antibodies are deposited first in the local tissues, and after the latter become saturated, they escape into the blood stream.

It is reasonable to conclude that any specific excitant, capable of stimulating such antibody formation to excess, is one which

is more likely to be contacted frequently and be responsible for clinical symptoms. Furthermore, reagms or annibodies, which occur in the circulation of clinically nonallergic persons, are transient. This latter group is allergic immunologically, or they would not have reagins in their blood. They may be, and often are, clinically nonallergic.

Once these reagins or skin sensitizing antibodies are in the circulation, they are easily demonstrated by the passive transfer or indirect method of skin testing.

or indirect method of skin testing.

Twenty-three years ago Praisnitz and Küstner <sup>3</sup> reported transfers of sensitization to nonallergic individuals, and in 1924 Matthew Walzer <sup>5</sup> introduced it into the routine of diagnosis.

The passive transfer reaction has the advantage over the direct skin reaction because it affords more nearly perfect controls. Simon of advocates the use of three controls:

- The Transfer Control consists of an injection of the extract into a skin site not previously sensured with reagin-bearing serum. The site may be a normal skin site or one injected with the serum of a nonsensitive individual. Make injection with the same volume and at the same time as the sensitized site with the same syringe.
- 2. The Specificity Control consists of an injection of the extracting fluid or some other allergenic extract, other than the one being investigated, into a sensitized skin site The above tests give no evidence concerning the syringe. Thus a "mechanical" wheal is produced for comparison which proves that mere fluid or some other allergen will not produce a positive reaction.
- 3. The Syringe Control. Simon has shown a syringe control is necessary because of the problem of syringe contamination. He suggests either previously unused syringes are necessary or the cleansing throughly of syringes by acceptable methods such as proposed by Small, et. al., f or by the author. 19

Properly cleansed and sterilized syringes with attached needles are partially filled with the extracting fluid and 0 01 or 0.02 cc. is injected into sensitized and nonsensitized skin stets. The reaction in both must be equal and negative, and the syringe acceptable only for transfers involving the serum which has been tested.

The procedure of Prausnitz and Küstner's consists of injecting intracutaneously 0.1 cc. of the patient's serum into a normal or nonallergic individual; and twenty-four to forty-eight hours later, 0.02 cc. of the specific allergen, which produced a positive skin test, into the area of the previously sensitized site, as well as into a control area of normal skin. This is preferably done on a similar or symmetrical type of skin. The tests are best performed on the back in vertical columns so that those on the left of the back represent the patient's and those on the right represent the recipient's reaction as a negative control. Scratch tests can be performed on the sensitized site but are less desirable, as they cause some trauma and increase the refractory state.

If the patient had reagins of the specific exctant in his serum, the sensitized site would develop a positive reaction. In general, when a patient's serum contains the offending reagin which shows after a previous positive scratch test, the control site should show no reaction, and the patient has the same percentage of chances of being clinically allergic as formetly cited for direct testing with the advantage of revealing clinical sensitiveness in a majority of allergies unsuitable for direct testing. If the control site also becomes positive, it would indicate that the recipient is sensitive as well to the allergen tested for, or that the solution is irritating. However, the recipient can be tested by a preliminary scratch test with the same specific excitant. When the test is unsatisfactory, another recipient is used. The area of the recipient os ensitized usually loses its sensitivity entirely in the matter of two to three weeks. The degree of reaction in the recipient is similar to the skin reaction of the donor and may be recorded as negative, slight, moderate or marked. A questionable reaction may be repeated with stronger dilutions, or direct tests on the patient may be repeated

Any increase of redness or wheal is considered positive. If there is no difference in the size of that of the control, it may be due to a refractory skin, and the test should be repeated in a fresh skin area. Any slight or doubtful reaction is significant if it occurs on repetition. Reactions are seldom as marked as by the direct method of testing. They also develop more slowly, reaching a maximum within forty-five minutes; but it should be observed from ten minutes after the injection, and on.

The chief indications for performing the test as indicated by Walzer 9 are:

Abnormal skin conditions of the patient, including:

Acute and chronic allergic eczemas (children and adults). Ichthyotic skins and those scarted by constant irritation (scratching and inflammation).

Urticaria (angioneurotic edema).

Marked dermographia.

Concomitant contagious skin infection (pyodermas).

Diffuse skin eruptions (acne, psoriasis, etc.).

Hyperirritability of the skin, as in babies.

Constant and severe asthma necessitating almost uninterrupted use of epinephrine.

Cases of extreme sensitivity in infants and children when the possible development of severe constitutional reactions on direct testing are feared.

Suspected allergy in infants and children too small or too

ill to be subjected to a long series of tests.

Antipathy on the part of the patient or his relatives to

direct tests.

The inability of the patient to visit the physician or undergo a series of tests either because of disability, inconvenience or lack of time.

The desire to check the genuineness of an unusual number of positive skin reactions elicited by direct testing.

To these may be added:

The colored race.

Sunburn or a heavy coat of tan, or diffuse pigmentations. It is best not to perform more than six or seven tests at one time, as the allergen may be absorbed sufficiently through the control site, reach the blood stream and cause a flaring up of the original sensitized site even if it has not been tested with the allergen. This phenomenon has been shown by Rudolph and Cohen, and others, to be exhibited in the nasal mucosa, and Walzer " and others have shown that the allergen may be absorbed from the digestive tract with normal digestion and also activate the passively sensitized skin site. For this reason, foods for which the patient is going to be tested should not be eaten before the test. This indirect method of testing has its limita-tions, especially when attempted by one not versed in special laboratory procedures. However, after several trials, it is much more simple than it would seem and is well worth trying.

Sterile technic is essential when obtaining blood from the arm, as in doing the Wassermann test. The blood is collected in a sterile centrifuge tube and kept in the ice box until a firm clot and a clear serum are obtained, and a Kline diagnostic test for syphilis is done, or the serum may be passed through a Seitz filter. If negative, an all-glass tuberculin syringe is filled with the serum free from red corpuscles, injected just as in any intracutaneous test, and the sites marked with a dot made by a skin pencil or ink one inch to the right of the injection. Twentyfour to forty-eight hours later the site is tested with the suspected allergen, just as is done in any endermal test. Its greatest advantage is testing patients with abnormal skins, such as those with eczema, hives or angioneurotic edema. The physician can perform the tests at his convenience and without discomfort to the patient, especially children.

A positive passive transfer reaction, when done with the procedure described herein, usually indicates active sensitivity, but not necessarily clinically, to the exciting agent involved in causing clinical symptoms. So far, it is the most reliable single test in allergy and has a much greater value than direct skin testing in the majority of allergic persons. It is not a complicated procedure, and after a little experience can be performed by a competent nurse or laboratory technician. Suitable nonallergic recipients for testing have been readily available, in the author's experience. All physicians would do well to use this valuable method of testing when applying proper allergy procedures to their practice or specialty.

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#### Discussion

Dr. Wittich: This talk was presented merely to emphasize the advantages of indirect skin testing under certain conditions when determining skin sensitiveness to allergens.

Since direct skin testing either by the scratch or intradermal method on patients with various allergic skin diseases is, as Dr. Laymon indicated, practically valueless, the passive transfer test assumes as much importance when testing unfavorable skins listed here as direct testing on suitable skins. It becomes extremely valuable when testing for inhalant factors and is at least 40 per cent valuable when testing for food offenders.

Indirect testing when properly performed as described indi-cates that the skin sensitizing antibodies of the wheal type have been formed in such quantities that they have saturated the fixed tissues and are spilling over into the blood stream. There is reason also to suspect that any antigen which is an excitant sufficient to produce antibodies in excess must be of greater clinical importance than one which does not. A passive transfer test becomes positive only when the skin gives a positive reaction on direct skin testing. However, when we consider over half of all allergic patients' skins are unsuitable for direct testing and may give false reactions, the passive transfer method is a highly accurate measure of the skin sensitizing antibodies.

It is true that occasionally a so-called normal or non-allergic individual may react to a food recently ingested in quantities sufficient to produce skin sensitizing antibodies but these reactions are transient and occasional when compared to the hypersensitive patient's reactions. Besides, this is easily obviated by eliminating the well-known food offenders from the recipient's diet for three days before the test and also doing preliminary direct skin tests on the individual beforehand.

Any physician properly applying allergic procedures to his practice is obligated to his patients to use every method of diagnostic approach at his command-first a careful history, second, skin testing (both scratch, intradermal and passive transfer), mucous membrane and conjunctival tests, elimination diets, individual food trial, et cetera. I have reason to believe that Dr. Matthew Walzer, who first applied the passive transfer as a routine procedure in 1924, still considers it a very valuable test when indicated.

I should like to comment on Dr. Erling Hansen's excellent paper on ocular allergy and ask him if he has reason to suspect retinal hemorrhages as sometimes being on an allergic basis. I have had two cases of such a nature. The one patient was a woman, age thirty-five, who had a series of retinal hemorrhages reducing her vision so that she is only able to distinguish gross objects and to walk unaided. Her sister was totally blind at the age of thirty-five. The patient also had a chronic perennial allergic rhinitis proven by cytologic studies, skin tests and food trials. Under elimination and hyposensitization measures, she can see just as well today as she did four years ago at her first consultation.

Dr. Scherer mentions gastro-intestinal hemorrhage. With our present knowledge of the allergic mechanism, that among other reactions there is arteriolar dilatation, increased capillary per-meability and diminished blood coagulability, it is reasonable to expect hemorrhagic states, particularly when the vascular system may be the shock organ. Bleeding in gastro-intestinal allergy no doubt occurs more frequently than we suspect. Besides x-ray studies, the stools should be examined for blood as well as for eosinophiles in the mucus. Eosinophiles may be found at the height of the reaction. In all allergic states there is an eosinophilic response but frequently this is missed because the examination was not made during the eosinophile phase.

Also cases are cited by allergists where there is some evidence

that progressive myopia may be on an allergic basis. There is frequently a positive family history of progressive myopia, and I know of two cases under allergic management where the progress has ceased and the same lenses have been worn for several

JULY, 1945 251

Du, Witticis (in reply to Dr. Hansen's question as to what allergy is): Although there are certain missing links in the chain of evidence for the basic mechanism of allergy, our present day knowledge of many of its principles are fairly well known. In order to understand allergy, we must understand anaphylaxis and immunity and their close relationship, as well as the physiology of the autonomic nervous system. The evidence indicates that first there is an inutating antigen-antibody reaction, although some evidence has been offered that such a reaction is not necessary. We cannot take time here to discuss the secondary physiological, chemical and psychological factors influencing the allergic state, which includes temporary predisposi-tion, such as gastro-intestinal disturbances, endocrine influences, fatigue, biologic and emotional factors. The inheritance factor. the nature of allergen and the influence of environment all must be taken into consideration. The specific reaction, with the stage thus set, occurs when the offender comes along, whether it is something we eat, breathe in or contact, and the interaction of the antigen or offender and the antibody produces at the site of the presponsity sensitized cell in the shock organ stimulation of the parasympathetic fibres through the mediation of acetyl-choline present and controlled by "choline esterase." There is a resultant cellular disruption through an unknown mechanism with the incidental or primary liberation of histamine. At this stage our concept has been greatly influenced by the work of Code in experimental anaphylaxis. The normal blood histamine is for the most part contained in the white cells, particularly the cosinophiles. It was found that by far the major portion of the histamine during shock passed from the white cell layer observations have led him to certain definite conclusions con-cerning the role of histamine in anaphylactic shock. The amounts of histamine liberated during shock were sufficient to explain the fall in blood pressure. However, if the animal survived the initial shock, the blood histamine rapidly decreased to normal values. He observed that dogs die of anaphylaxis in normal values. The observed that dogs die of anaphylaxis in two states of the reaction. There may be an "explosive" his tamine release which floods the circulation causing irreparable capillary dilatation, which is irreversible, and quick death ensues; or the animal may recover from the first stage of the reaction with return to normal of blood histamine values and an approaching normal blood pressure. However, Code observed that "later some animals even with a normal blood his served that later some animals even with a normal pood nis-tamine may sink into profound shock and coma and die with a normal blood histamine." Also, it was noted that histamine is not responsible for the decreased coagulability of the blood so characteristic of anaphylaxis in dogs. Based upon the ob-servation of Jacques and Waters (1941) that heparin is re-leased from the liver during anaphylaxis and the observations of others (Watanabe 1931, Ojers, Holmes and Dragstedt, 1941), that the greater part of the histamine released during the reaction also is derived from the liver, Code suggests that during the reaction there is a simultaneous liberation of histamine and hepatin resulting from cellular disruption in the liver. He further suggests that there is another factor and not histamine which is fundamental in anaphylaxis and allergic reactions, and stresses that the sensitized cell damage is the responsible factor, with incidental release of histamine as a result of this cell damage. If the cell contains histamine in suffi-cient amounts and the animal is sufficiently sensitive to histamine, it may die as the result of a histamine death. On the other hand, dogs in anaphylaxis may die long after the blood histamine concentration has disappeared, as a result of cellular damage when histamine was incidentally released. Code points our that in allergic reactions in the dog there is the symptomatology of both histamine poisoning and heparin action. The actions of these liberated distupting factors is well known, and the pathophysiologic responses, which are defense mechanisms set up, stimulate glandular activity with increased mucous secre-tion, art directly on the capillaries, increasing their permeability with the loss of fluid and electrolytes into the tissues, produce efferent arteriolar dilatation with hyperemia, and smooth muscle contraction or spasm, all which in turn produce the manifest allergic symptoms clinically recognized as bronchial asthma, hay fever, eczema, urticaria, angioneurotic edema, et cetera. The whole vicious circle is a local "axon reflex" and may occur in a localized shock organ area without cord influences. Many psychiattrists wish to explain allergy primarily on a psychogenic basis, and not as a contributing factor, ignoring the antigenantibody reactions. How can they explain the transference of skin sensitizing antibodies discussed here tonight or the production of the neutralizing or immune antibodies produced by the traction?

#### ALLERGY IN DERMATOLOGY

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There are many reasons why dermatologists are particularly interested in allergy. Many manifestations of both cutaneous and venereal diseases are known to be based on allergic mechanisms. The skin also serves as an important test organ and it has many functions of defense which are related to allergy. One of the most important advances in the knowledge of the relationship of the skin to allergy was that of smallpox vaccination. Koch's experiments in tuberculosis and the studies of Bloch and J. Jadasson and their followers on allergic phenomena in fungous infections also stress the importance of the skin's capacity to react in the study of these diseases.

The skin is a tremendous organ and has been estimated to weigh over 3,000 grams in contrast to the liver, for example, which weighs between 1200 and 1600 grams. The skin is the principal organ which separates us from the outside world and has numerous protective functions against trauma, light, and bacterial and chemical irritants. If it were not for these protective mechanisms the skin surface would undoubtedly be continually covered with boils, warts, ringworm and countless other infections and the individual in all probability would succumb Thus it seems logical to assume that the skin has important functions of immunologic protection and of allergic alterations.

Because of the accessibility of the skin, it serves as an important test organ in allergic studies. The skin can be seen, touched, scratched, scraped, irritated, tested, analyzed, and studied histologically at any time. The Schick, Dick, Schultz-Charlton, tuberculin and trichophylin are examples of important skin tests.

Since ectema of both the contact and atopic types and acute, subacute and chronic utitications are encountered with great frequency in everyday practice, some comment should be directed to the question of the value of skin tests in these conditions. It is extremely important to make a correct diagnosis before any form of skin testing is considered. Practically all dermatologists have seen cases of lichen planus, scabies, and other "non-allergic" dermatoses which have been thoroughly scratch or patch tested. Even after the proper diagnosis is made, the selection of the proper type of test is important. For example, I have seen cases of contact dermatitis due to nail polish which have had dozens of seratch tests for foods and inhalants applied.

It is the concensus among dermatologists that scratch or intracutaneous tests with suspected, inhaled or ingested substances are of little value in atopic dermatitis in either infants, children or adults. The same may be said of acute, subacute, or recurrent cases of utricaris. In chronic utricaria, such tests are almost always of no value. Substances which may be negative on skin tests may be causes of clinical flare-ups, and substances eliciting strong positive reactions may be barmless on clinical exposures.

In contact dermatuts and drug eruptions of the eczematous type, parch tests with suspected agents are often of great value and may give significant information regarding the causarive agent in many cases. Even in these cases, however, the competent dermate-allergist can expect to find and eliminate the etiologic agent in only somewhat over a third of his cases, but in the remaining two thirds, almost all will be benefited and many permanently relieved by correct topical therapy including the cautious administration of superficial roentgen rays.

### \* \* \* \* \* Discussion

DR. MALCOLN B. HANSON: One can see the multitude of manifestations of allergy. On occasional chest films we see localized shadows, with the pazient having practically no pulmonary symptoms. These are due to transitory and localized instances of edema secondary to allergy.

DR. HERTZOG: In speaking of gastro-intestinal allergy, one might mention Henoch's purpura. This is a non-thrombocytopenic purpura that is considered to be anaphylactoid in nature. Abdominal symptoms may occur before any signs of skin purpura develop. It is not uncommon for a surgeon to explore these patients and find an urticarial hemorrhagic effusion within the intestinal wall.

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DR. Hansen: There are a lot of other things that are suspected of being allergic manifestations in the eyes. With the time allotted we could hardly touch the high spots. The cases that Dr. Wittich spoke of, which we find in a fairly large number of young men in their late teens and early twenties, that of hemorrhage, usually in one eye, suggest the so-called Eale's disease. Some go on to blindness and some clear, and seem to have no further trouble after they reach their middle twenties. It is nearly always seen in males, but sometimes in females. These are cases of periphlebitis, usually due to tuberculosis and had not heretofore been considered as allergic.

Also in the retina we have a macular lesion which is undoubtedly a vasomotor disturbance, an edema that sometimes goes on even to cystic degeneration, which Dr. Gifford, who was head of the department at Northwestern, termed central angiospastic retinopathy, and which Duke-Elder thinks may be of an allergic nature.

The important thing, I think, in any field is the recognition of the fact that we do have these conditions and that when they occur it is almost invariably when the individual himself or his family have manifestations of an allergy of some kind.

Another condition that is not strictly an eye affection but that we certainly see often enough, is the migraine type of headache. It seems to me that generally speaking the men who are seeing these patients from day to day don't recognize them as migraine cases. So many of them with a very definite migraine history come in for refraction before any other examination is made. From those whom I have checked, there have been excellent results in, I should say, at least one-third of the cases. There have been severe cases of headaches that were treated as allergic cases and were relieved when one item or another had been eliminated. That these headaches had nothing to do with the use of the eyes is indicated by the fact that these headaches sometimes came on in the night.

Perhaps many of you remember a case which was reported in the American Journal of Allergy about 1937. It was a very striking report of a nurse who had been having severe headaches and was reconciled to the idea of an operation to look for a brain tumor. A temporal decompression was done as a preliminary. Soon after, she developed one of her severe headaches. With this attack she showed a soft mass which herniated through the decompression area; apparently a wet brain. Then she was studied from an allergic standpoint and it was

found that allergy was the basis of her trouble.

# FEBRUARY, 1945 OPHTHALMIC MIGRAINE WALTER LEES HOFFMAN, M.D. Minneapolis, Minn.

I have chosen to speak on the subject of ophthalmic migraine since it is encountered frequently by the ophthalmologist, although perhaps not always recognized, and yet is a part of a much greater disease entity seen in its protean manifestations by many of you in other fields of practice. I do not feel qualified to deal with the question of the cause or causes of migraine. From what I can learn there are perhaps many or multiple causes. Some of the various causes that are advanced are allergies, psychic disturbance, physical influences such as variations in heat and pressure, fatigue, and others such as endocrine imbalances. The mechanism by which so many and varied etiologic factors may lead to a similar result seems to be unquestionably a vasomotor imbalance within the cranium and in the brain substance itself. Whether this is vasospasm or vasodilatation may yet be open to argument. Perhaps some of you may have a word to say on this. The therapy of migraine similarly is in somewhat of a state of disorder. Naturally if some definite cause for an individual case can be demonstrated, treatment of

that cause may prove satisfactory—some of the cases apparently caused by allergic sensitivities respond well when the offending allergen is avoided. But many others are of such non-specific origin that treatment is often empiric. Dr. Horton of Rochester in his work in recent years on histaminic headache has perhaps removed from the grab-bag group a certain number of persons with headache which has been in the past classified with the migraines. I do feel sure that treatment directed at the eyes—principally correction of refractive errors and muscle imbalances, is not an effective cure for migraine, whether ophthalmic or otherwise, although such corrections if they reduce the nervous strain or tension under which the individual operates, may reduce somewhat the frequency or severity of the migraine.

The ophthalmic migraine of which I should like to speak is only one manifestation of several ways in which migraine may affect the eyes, since transient pareses of extra-ocular muscles and even retinal hemorrhages and vascular changes have been ascribed to migraine, but it is certainly the most common eye manifestation of migraine, and is seen at some time or other by a very considerable proportion of all migrainous individuals. It has often been identified by the term scintillating scotomata, but this means little to the patient, and I am afraid that many physicians have not a clear picture in their minds of what it does look like. In the most typical and clear-cut cases the patient sees, and will attempt with more or less success to describe, an arc-like figure in one-half of the visual field, composed of brilliant lines in a more or less complex pattern, which sparkle, shimmer, or coruscate, and is usually seen against the background of a scotoma—a blind area in the field of vision which appears black or brown. This may of course be seen equally well in daylight or dark, with the eyes open or shut. There is considerable variation in the detail of pattern seen, but a strong general resemblance exists among them all. When studied more closely, as it has been by numerous individuals in various fields of medicine who have themselves suffered this form of migraine, the phenomenon will be found to start usually with a mottled, blotchy, or confused appearance of the object under observation. The blotchy area soon becomes a scotoma of appreciable size, always located in one of the lateral fields of vision. As it grows a bit the peripheral edge begins to show the brilliant pattern that is so characteristic. The area involved increases gradually for a period of 10 to 30 minutes and then fades and vanishes. The details of the pattern do not increase in size, but the pattern becomes more complex through the addition of new elements to it. As the pattern proliferates the inner side fades out into the scotomatous area. Occasionally the negative, or inhibitory, or scotomatous phase is lacking, and objects may be seen in the field immediately behind, or even between the socalled fortification figures. Since the disturbance arises near the point of fixation it is obviously an affection of the posterior pole of the striate visual cortex in the occipital lobe. The excitation spreads in a wave-like fashion forward through the visual cortex and therefore toward the periphery of the visual field. The rate of propagation and the measurements of the visual cortex (approximately 67 mm. from back to front) would indicate that this wave of excitation travels just under 3 mm. per minute in the average case. The rate of flicker of the figures seen is in the neighborhood of 10 per second. It may be related to the alpha rhythm. Patients may describe it as merely a flicker, or as spokes of brilliantly polished steel, or as resembling a picket fence made of diamonds. A physician has described it to me as looking like the heat waves rising from a hot iron. Some persons see it in black and white but more commonly it is in iridescent or opalescent colors.

The subject is important to me because I see so many patients who have suffered it for years, either with or without other manifestations of migraine, and have never been given a satisfactory explanation of why their eyes play this odd trick on them. Those who have seen it but recently often come in great apprehension—fearing some grave eye condition, or perhaps brain tumor. The homonymous hemianopic field defect which is part of the manifestation certainly does nothing to quiet these apprehensions. Many patients have sought relief from various sources, and may have with them a number of pairs of glasses. Too obviously the ophthalmologists who have seen them thought their symptoms were those of eye-strain, or perhaps merely neurotic. We have here another example of the importance of

JULY, 1945 253

taking a careful history, and listening with attention to the patient's description. I have found it worth while to keep at hand several of the various pictures that have been published of this, as many patients will at once recognize from a picture something I might have difficulty conveying to them in words.

I have said that I do not feel well-grounded in the therapy of migraine, and this applies to ophthalmic migraine equally. If a patient is sufficiently distressed I can give him the proper diagnosis, reassurance that no grave eye condition impends and that he will not be blinded, and refer him to someone who has more knowledge and the patience to deal with the problem in a general sense. But it frequently happens that after diagnosis and explanation the psychic element is mitigated to such an extent that the patient is no longer distressed and may even have less frequent and severe attacks.

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#### Discussion

DR. CHARLES E. STANFORD: Dr. Hoffman has given us a very clear picture of the ophthalmic phase of migraine headaches. I think possibly he is a little hard on the rest of us when he states that it is so seldom recognized. Dr. Hoffman mentioned the transient losses of vision, chiefly of the hemanopic type, that sometimes accompany or precede the migrainous headache and frighten patients a good deal. In the past seven or eight years I have seen a lot of these symptom complexes among university students. The student usually reports to the Health Service dispensary with the complaint of partial loss of visual field and he or she is then referred for examination as an emergency. By the time the student is examined, the symptoms have usually disappeared and the findings are entirely within normal limits. These hemianopic field defects seem to occur more commonly during periods of stress and among the student population are therefore much more common during the days and nights preceding quarterly examinations.

Recently I saw a young man who varied from the others in that his visual defect was not one of hemianopia, but a loss of central vision. He had a history of these attacks going back over a number of years. They occurred at times of stress and recently the boy was quite concerned about his coming induction into service, which seemed to make the attacks much more frequent. This type of transient loss of vision brings up the point of differential diagnosis. A few years ago I saw a man in his early thirties who had just such symptoms. The man also had a ten year history of very severe attacks of headache of sudden onset, uncertain duration, cessation without any known cause. He did not respond to any drugs. He had a number of eye examinations and had had glasses prescribed for hyperopia. These he wore for reading with some benefit from eyestrain, but no relief as far as the headaches were concerned. He had had considerable sinus surgery. Then in more recent months the transient attacks of visual loss occurred. He could very easily have been labeled a typical migraine. However, he was found to have a bilateral papilloedema and eventually was operated upon successfully for the removal of a brain tumor. I do not think that any case of apparent migraine should be labeled as such until all organic conditions have been thoroughly ruled out. Many of these cases of ophthalmic migraine do wear glasses unnecessarily. There are, however, a number of them who wear corrections for various reasons just as the rest of us wear glasseseither to see better or to see more comfortably. Occasionally these people find that their migrainous attacks are less frequent when glasses are worn.

DR. CYRUS O. HANSEN: I'd just like to mention here the difficulty in obtaining information about migraine. When I first began to get these cases, back in 1925, no one could tell me what they were, and no one seemed to know much about what was going on. At that time I went to three of our very good

eye men, including the professor of ophthalmology in 1927, and I wasn't told then what they were or what their significance was. I finally read a book and there they were explained.

DR. WALTER L. HOFFMAN: In flinging insults around about ophthalmologists, I should, of course, have said present company excepted. Not all ophthalmologists recognize migraine as well as Dr. Stanford. That's why he is in this group. Of course, in spreading propaganda about this we are just trying to keep the cases off our necks by getting other people to recognize them before we have to look them over.

#### GLOMUS TUMOR

(Glomangioma, Angioneuromyoma, Glomal Tumor)

JOHN F. POHL, M.D.

Minneapolis, Minn.

The glomus tumor is a small, benign, discrete, sharply circumscribed lesion arising in the arteriovenous structures of the skin, particularly of the extremities. It commonly occurs beneath the nail in which case its presence may be determined by a bluish or purplish discoloration of the nail. The tumor is minute, measuring usually not more than a few millimeters in diameter, and its presence may be unsuspected where the typical bluish color is not present. The patient usually complains of attacks of severe fancinating, knifelike pain, always arising at a definite point in the skin and frequently radiating up the limb. At times the entire half of the body may be involved in the paroxysm of pain. The painful attacks are usually brought about by injury or by changes in temperature, especially exposure to cold. The symptoms are so intense and severe that the patient is frequently suspected of being either neurotic or a malingerer especially where the characteristic bluish spot of discoloration is absent. The specific location of the tumor can be readily determined by the fact that touching the exact pinpoint area overlying the tumor causes the patient to experience the severe par-oxysm of pain. Permanent relief is obtained by excising the tumor, removing a good portion of skin and subcutaneous tissue from around the central area whetever possible. The use of x-ray and radium is said to be of no value.

The glomus is a normal vascular structure of the skin and these collectively make up the network of blood vessels in the reticular layer of the dermis and in the subcutaneous tissue The plexus constitutes the arteriovenous anastomosis of the circulatory system of the skin. Besides controlling peripheral circulation it serves a purpose in the mechanism of temperature regulation of the body and also in the control of blood pressure. Glomera are not present in the skin of the newborn child but develop in the first months of life. The absence of these structures accounts for the instability of normal temperature regulation in the newborn. The individual normal glomus is formed from a branch of a cutaneous artery running through the subcutaneous tissue toward the skin surface. The small arterial branch which is to become part of the arteriovenous anastomosis has a muscular coat and in the area surrounding the anastomosis are found numerous non-medullated nerve fibrils. The glomus tumor is genetically related to the structures which make up the normal glomus and consists of hyperplasia of the blood vessel, nerve and muscle elements. No cause is known for the occurrence of the glomus tumor but trauma supposedly plays an important part. The majority of the reported cases have occurred in the fingers or toes but the tumor may occur elsewhere in the body. The differential diagnosis should include consideration particularly of the angioma, neurofibroma and melano-epithelioma. These lesions are painful but are seldom as sensitive as the true glomus tumor

The case which I should like to present is that of a 49-year-old woman. The condition affects the left fourth finger. The lesion has not been actually confirmed by biopsy but the history is typical and the finger nail has the characteristic blush discoloration. The patient has been aware of the condition for fifteen years during which time she has suffered great agony from the lesion without the benefit of any great amount of sympathy from those she has consulted. She came to my attention because of the fact that the tumor involves the underlying phalank, an uncommon event but known to occur in some cases.

The patient suspects that the trouble arose from an accident with her sewing machine in which the needle pierced the finger but did not break off. There was no resulting infection but some time later the finger became painful and has remained so since. She lives in constant fear of bumping the finger and has frequently awakened at night with excruciating pain radiating from the finger up the entire arm. Changes in temperature cause severe pain and touching certain types of cloth, particularly rayon, causes her to have this same reaction. There is a hypersensitive pinpoint area just proximal to the nail which when touched causes her to cry out but she invariably draws her hand away at the slightest approach of anything roward the finger. Owing to the fact that the bony phalanx is involved in the tumor it would not seem reasonable that she could secure relief without amputation of the end of the finger. This she has so far been reluctant to do. Deep x-ray treatment which has been given merely on a hope of palliation has seemed to impress the patient that the finger is less sensitive. She defi-nitely feels that the discoloration of the nail has been reduced by the x-ray treatment.

#### Discussion

DR. O. J. CAMPBELL: Doctor, isn't the objection to the removal of the tumor a question of the cosmetological damage it would do to the nail?

DR. J. F. POHL: It seems to me that the defect of the terminal phalange must be assumed to be part of the glomus tumor. You would have to take the nail off and permanently sacrifice it. I think this might cure the pain. This is the ring finger and one couldn't very well remove the tumor without digging in deeply. She feels that x-ray has helped her. The tumor has faded somewhat. The patient is anxious not to sacrifice any part of the finger.

DR. T. J. KINSELLA: Do you think that the condition of the terminal phalanx there is the result of a tumor or a result of

the trauma?

DR. J. F. POHL: The needle did not break off when the injury occurred and there was never swelling or drainage. It was just a clean puncture wound. It has been reported there are cases of bone damage in glomus tumor but these are rare. I believe that the defect in the phalanx is all part of the same lesion.

DR. CYRUS O. HANSEN: I have been very much interested in this case. I have seen four cases. The first one was at the clinic in the University hospital. It was shown to everybody because it was said to be very typical. The patient had terrific pains from a very minor trauma, or cold, which set off these parox-ysms. I didn't see another one until I went to the University of Rochester. There I saw one on a toe. They have all been very characteristic. As everyone knows, they are terrifically painful.

This is the first one I have treated with x-ray. As Dr. Pohl said, the books advise that x-ray and radium have no value in controlling them. Usually they involve a nail. Certainly no matter how the tumor was removed, there would be some deformity of the nail, but most persons would go through a great deal, even to losing the end of the finger, to get rid of the pain. This woman is unwilling to sacrifice the finger. I feel that she does seem to have definitely less trouble than she had when we first saw her.

DR. WALTER L. HOFFMAN: As I remarked to Dr. Pohl before, one of my patients appeared with one of these tumors in the cornea. This tumor seemed to be on the cornea at the limbus. It was sensitive to changes in temperature, and you could see with a slit-lamp that it contained more nervous tissue than blood vessels. On section it was called a glomus tumor.

DR. HARRY B. HALL: I have seen one case which has been explored and it has been identified by pathological examination, but it was not removed entirely and the patient has had further trouble. The lesion is on the sole of the foot. When I asked what was the matter, she just said she couldn't walk on her foot. She had this typical bluish angioma, and when I tried to touch the foot she drew it away. She was told she would have to have it excised. I didn't recognize immediately what it was but I thought it might be a glomus tumor, and I was able to

get a pathological report that it was. She is hobbling to school on crutches now, marking time until spring vacation.

She was operated and she was helped for about four years, but she said that certain things-as Dr. Pohl brought outseemed to give her trouble. She never could go out where it was cold, and she had to be very careful. Apparently the heavy pressure doesn't bother her.

Dr. Harry A. Cumming: As a dermatologist, I will have to confess my ignorance in regard to these lesions. I have never seen a case and previous to this presentation by Doctor Pohl, wouldn't have recognized the disease. Since the therapy for the removal of these tumors is always surgical, we have never considered them very seriously as part of our practice.

#### MARCH, 1945

#### THE MANAGEMENT OF ACNE VULGARIS HARRY A. CUMMING, M.D.

Minneapolis, Minn.

Acne vulgaris is among the oldest of known skin diseases. Since its earliest description much work has been done in an attempt to find out more about its causative factors. As a result much has been learned, but like many other medical problems, there yet remains much more to be discovered. This disease, which comprises 10 per cent of all cases seen in dermatologic practice, and 50 per cent of all students entering college as brought out by Lynch at the University of Minnesota Student Health Service, is seen frequently enough by all physicians to be of some general interest. All too often, it is passed off lightly by disinterested individuals, and as a result many of these patients seek the advice of charlatans of one sort or another. Then, because of continued lack of improvement they give up hope, and resign themselves to silent suffering. We are frequently impressed with the fact that even the average physician is quite indifferent to the acne patient while the latter is always disturbed over his disease and seeks to find out what can be done about it. The patient's first interest is always in the cosmetic aspect, but one must not lose sight of the social and economic side of its complications. Not infrequently, as brought out by Marshall, they involve the victim's future to such an extent that he is unable to follow successfully his endeavors which in many cases may be tragic.

It is not my intention to review and discuss this broad subject in detail, but merely to mention some of the more important concepts concerning its etiology, pathogenesis and morphology, and then outline in detail what we consider a practical and successful regime of therapy.

#### ETIOLOGY

Much speculation has been given to the etiology of this disease. The bacteriologic theory was very prominent for a long while, but subsequent work showed it not to be the answer and now vaccines are used only as an adjunct to other methods of treatment. For a time much stress was placed on general factors. Included here were such things as poor hygiene of the skin, occupational and home living conditions, and poor physical states, indicating abnormal function such as constipation and other gastro-intestinal abnormalities. More recently Bloch, Marshall and others have discussed the influence of heredity and endocrine dysfunction. Hamilton has attempted to show the causative effect of the male sex hormone, while others have demonstrated the various influences of metabolic abnormalities. Nothing definite has developed from chemical studies of the blood sugar, glucose tolerance, and cholesterol metabolism. All in all we feel that the seborrheic tendencies seen in these cases are influenced by hereditary factors, and that the patient's physical and functional disturbances resemble those of their forebears much as do their physical and anatomic characteristics. Therefore it is the concensus of opinion at present that acne vulgaris is not a disease sui generus, but rather a syndrome which is the result of a combination of influences. Supporting this view are its time of onset which seems to relate it to the activity of the glands of internal secretion, the effects of ingesting certain foods, the premenstrual flare, and the hereditary predisposition for the disease.

#### PATHOGENESIS

The primary lesion and first clinical manifestation is the comedo It is probably due to the effects of the various mentioned factors on the follicle. First there is a blocking of the follicle mouth. Then progressive events of dilatation, irritation, and secondary infection lead to a fully developed case with associated comedones, papules, pustules, crusts, and pitted scars. These characteristics are variable because of the many stages through which a case may go, but the pathologic picture is exactly what one would expect as a reaction to foreign bodies such as comedones and secondary bacterial invasion. One point should be stressed, and that is the frequent presence of many giant cells in areas of intense inflammation with necrosis, because these might be interpreted by some as indicating tuberculosis. These are the areas which frequently result in pitted scars,

It is fully realized that a large percentage of acne cases are self-limited, and that the disease disappears spontaneously after the twenty-fifth year. In spite of this, because of the unhappiness and emotional strain which it causes the 'teen age sufferer and because of the social and economic limitations which it places on the older patient, everyone with acne should receive the utmost in therapeutic approach and sympathetic encouragement.

The treatment of this disease has passed through many phases and has included both internal and external termedies. Some are still used but many have been discarded. Since it is viewed as a manifestation of a detanged sebaceous gland sys-tem, we adhere to the group who feel that it is of benefit to eliminare such foods as fats, including milk, starches, gravies, sea foods, nuts, and iodized sale. Therefore, each patient is given a diet list and simple printed instructions for the local care of the skin. Stress is laid on regular habits of living, and especially on getting sufficient rest and relaxation. Constipation, if it exists, is eliminated as are any foci of infection. Because of associated seborrhea, frequent soap and water cleansing of the scalp is generally demanded and well tolerated. For this a liquid shampoo is advised and if the condition is severe a stim-ulating sulfur ointment is used for twenty-four hours before shampooing.

A minimal dose of stock staphylococcus vaccine is given at each visit, not for its specific value, but only as a form of mild foreign protein therapy to enhance body resistance.

In recent years, roentgen ray has been our chief weapon in the specific attack on the disease. With it we attempt to achieve a relatively rapid and permanent cure and to a large degree avoid the frequent use of unsightly local applications. Then too, delaying this form of treatment in such deep types as acne indurata, may result in further scarring which may often be disfiguring. Even in the absence of scarring it is not well to allow the disease to continue unchecked because the skin is likely to become coarse and only,

Roentgen ray treatment of skin disease was first popularized through the efforts of Pusey, and later through valuable contributions by McKee and others. As a result, much experience has shown that when it is used properly, it is our most effective therapeutic agent. However, there are, even today, physicians who condemn the x-ray treatment of acne vulgaris, although a far greater proportion feel that it is a safe and a reasonably cer-tain method. When used in conjunction with indicated constitutional and local therapy it is the desirable method and properly applied the cure is much faster, cosmetic results are better and recurrences are less frequent than by any other. No dan-ger of injury exists if a careful examination of the skin is made before each treatment, and if proper dosage is given weekly with a standardized machine. In a large percentage of cases, when carefully used, x-ray therapy spells the difference between success and failure.

A complete understanding between doctor and patient at the outset is highly desirable. Both the drawbacks and expected results should be discussed in such a way as to eliminate any later unpleasant complication with a dissatisfied patient.

The benefits from x-ray are probably due to their inhibitory effects on an overactive sebaceous gland system, and disintegration of inflammatory changes. This prevents the formation of

comedones. Concurrent use of local applications is generally not indicated, but in an occasional case where the skin is extremely oily, a drying preparation may be advantageous until the x-ray effect sets in. Unless the skin becomes excessively dry and uncomfortable, the use of greases and creams is forbidden.

The larger comedones are expressed at each visit and the pustules and cysts drained. Patients are instructed to refrain from attempting this themselves for invariably they damage surrounding tissue, causing increased inflammation.

In those cases where acute inflammation predominates, it is necessary to delay the use of roentgen rays for a few weeks while soothing local remedies are used. Then as acuity subsides, x-ray therapy is used in the usual manner and average satisfactory results are obtained.

Our exact technic consists in giving 75 roentgen units unfiltered to the affected areas. This dose is given once a week for three weeks, and skipping every fourth week until a course of twelve treatments is given. Thus, due to the two week interval following each three x-ray treatments, the entire course requires sixteen weeks. We feel that any danger of erythema or other type of roentgen reaction is greatly reduced by skipping every fourth week. In addition by carrying our course of therapy to a full conclusion of twelve roentgen treatments, recurrences are less frequent. It must be remembered that the roentgen effect is gradually accumulative and also that very small doses are used here; therefore, very little if any benefit will be noted before the sixth or eighth week. If this is explained to the patient early he will be much less impatient and more easily handled during the first half of the course.

To use roentgen rays satisfactorily one must not only know how, but also when to use them Knowledge of when to discontinue treatment is an invaluable aid in properly treating those who clear up quickly. Rapid response often makes fewer treatments desirable. Some cases might require irradiation to the point of injury in order to accomplish a cure so complete as to prevent even the slightest recurrent lesion. Such extension treatment is unnecessary and inadvisable. Obviously, in careless hands x-ray does not constitute a perfectly safe method of treatment, but I fully agree with Pels in that it may be used advantageously in all chronic types if proper dosage is given.

In a consecutive series of 134 cases of acne treated by this method in the outpatient clinic of the Minneapolis General hospital, 71.6 per cent resulted favorably, 10.5 per cent showed marked improvement, and 18 per cent showed partial recurrence in from six to twelve months following completion of treatment Of the 71.6 per cent who showed favorable results (61 cases). 63.5 per cent were clear with no recurrence a year following completion of treatment. Here the result was considered excellent. Of this same group, 36.4 per cent (35 cases) showed an occasional recurrent lesion and the result was looked upon as very successful. Fourteen cases-the 105 per cent which showed much improvement but suffered from some recurrent-felt that the treatment had been of enough benefit to make it well worth

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#### Discussion

Dr. S. E. Sweitzer: Dr. Cumming has outlined the chief points. I want to emphasize the indifference I find among the general practitioners to the treatment of acne. These patients who have acne feel very keenly about their condition. feel self-conscious in the company of their younger friends, and develop neuroses, and some become what we call "pickers," They start picking at themselves with the result that they leave bad scars impossible to eradicate.

Now, as far as the etiology goes, I think we can be frank to say we don't know what the cause is. We have comedones in infants. We don't know why. We feel it has something to do with sex glands in puberty but some get it years after puberty starts and some even in their late twenties and thirties. Some have a lot of comedones and some have deep-seated papules or pustules.

From the incidence in Minnesota, when you consider that a cross section of the better families of the state are represented by the children going to the University of Minnesota, examinations for enrollment, in the student health service, show more than half of the entering students-truly a cross section of the finest families-have more or less acne. I often wonder what makes that, and I have figured it out to some degree. This is a dairy state. A lot of people think that if you take a child off milk his teeth are going to fall out. After sixteen years of age the teeth are all formed and it doesn't make the least difference whether you have milk or not. Over half the dentists in this town may not agree to this.

One of the chief causes of acne, I think, is milk. I can watch a patient walk in and can tell if he is a milk drinker or not. With all the pressure of business that the kids have now, they might as well throw their teeth away. All they eat is ham-burgers, milk and Coca-Cola, three times a day. They throw the vegetables out and give the lettuce to the rabbits. They don't know a thing about eating. I think one thing that has a great deal to do with this high incidence of acne is the fact that these kids are brought up with the idea of drinking so much milk. I have quart-a-day and two-quarts-a-day patients. It is foolish to take all this milk.

So far as the x-ray therapy goes, we have here, and also all over the United States, the hit and miss variety of treatment for acne. You give them x-ray and then if your girl is too tired to give x-ray the next time you give them a lamp treatment. You give x-ray with the idea of diminishing the activity of these sebaceous glands, up to the point where the hyperaction

stops. In my private practice I have 75 per cent cures. We are lucky to get 70 per cent on the clinic patients as they have less opportunity to stay on rigid diets than those who pay for treatment. As to the effect of vaccine, we give very small doses of vaccine, but it isn't absolutely essential in treatment of acne. As for the diet, besides the elimination of excessive fats is the elimination of too much sweets.

DR. HARRY A. CUMMING: This method of treating acne is one that I learned while training at the General hospital under Doctor Sweitzer and I appreciate his coming over to discuss this paper.

We feel that our results in the treatment of acne in the clinic patients are pretty good, but I fully agree that they are somewhat better in private practice where we are dealing with a more cooperative group of patients.

There still remains, as Doctor Davis brought up, the occasional case that is so mild that it does not need x-ray treatment. In these cases we modify the treatment. The choice of method depends upon the case itself and any combination of methods, of course, depends upon the judgment of the operator.

There is just one other point that I want to bring up and that is the desirability of the use of x-ray in severe acne. It has been suggested that the treatment of acne vulgaris be deferred until the age of eighteen years or later because of frequent recurrences if treated before this age. We have more or less ignored this in our approach to the subject and have found, to our satisfaction, that it is better to treat the cases, when they present themselves, to prevent scarring and damage to the skin.

#### RESECTION OF PANCREAS FOR HYPER-INSULINISM DUE TO ISLET-CELL TUMORS

STANLEY R. MAXEINER, M.D. Minneapolis, Minnesota

K. M., aged 24, a discharged soldier wounded twice in the South Pacific, experienced his first symptoms when he became unconscious on sentry duty. He was evacuated and experienced several more unconscious attacks during the process of evacuation. He was discharged from the army as an epileptic for want of a better diagnosis.

The patient's symptoms were lethargy, drowsiness and irritability and he was uncooperative and difficult to manage. During stupor the blood sugar was found to be as low as 28 mg. per cent. He promptly regained consciousness after the intravenous injection of glucose. Repeated blood studies showed a persistent hypoglycemia. The preoperative diagnosis was hyperinsulinism due to islet tumors.

The patient was operated upon and 75 per cent of the pancreas was removed. The specimen weighed 46 grams and contained eight islet tumors. Microscopic study revealed characteristic islet tumor tissue.

Since the operation the blood sugar is stabilized near 100 mg. per cent. He has had no more attacks, has gained weight and strength and has a completely changed personality.

(Lantern slides of gross specimen and microscopic tissue were

#### NATIONAL HEALTH PROGRAM

The congressional subcommittee's analysis of national health problems and its recommendations concerning certain aspects of a national health program are described in Interim Report No. 3. The objective of the subcommittee is to make certain that adequate medical care and preventive services are placed within the reach of all of the people in all of the communities in this country. It is proposed in Interim Report No. 3 that the Federal Government shall give financial assistance to the States, in accordance with their needs and resources, for the development of State plans which will enable every community to obtain facilities suited to its needs. A coordinated network of hospitals and health centers is proposed. The full cooperation of both private and public agencies is contemplated. The need to evolve prepayment plans which will remove economic barriers to medical care and at the same time assure adequate compensation and professional freedom for the practitioner is recognized.

July, 1945 257

### American Student Health Association News-Letter and Digest of Medical News

### SCHOOLS IN NEED OF STUDENT HEALTH PHYSICIANS

In need of Directors:

Iowa State Teachers College, Cedar Falls, Iowa. Montana State College, Bozeman, Montana. University of New Hampshire, Durham, N. H. University of Wyoming, Laramic, Wyoming.

In need of Assistant Physicians:

Yale University, New Haven, Connecticut.
The University of Wisconsin, Madison, Wisconsin. (Two possible openings—more or less temporary.)

University of Illinois, Urbana, Illinois. University of Michigan, Ann Arbor, Michigan. (May need assistant in near future.) The State University of Iowa, Iowa City, Iowa.

University of Colorado, Boulder, Colorado. Iowa State Agriculture College, Ames, Iowa.

The following positions also now open for physicians in college health services:

Syracuse University, Syracuse, New York (wants a psychiatrist).

Georgia State College for Women, Milledgeville, Georgia (wants woman physician).

#### **NEW DIRECTORS**

The following new directors of student health services have been appointed: Dr. Leonard Folkers, goes to Stephens College, Columbia, Missouri, to replace Dr. Florence Mahoney who has taken a Baruch fellowship in physical medicine at University of Wisconsin. — Dr. Max Durfee, formerly Iowa State teachers college, goes to University of Oklahoma, Norman, Oklahoma, to replace Dr. F. T. Gastineau, resigned.

Dr. Ruth Boynton represented the American Student Health association at a meeting in New York City, May 20, to correlate activities of the various groups teaching health education.

Dr. B. D. Roberts represented our association at the inauguration of Dr. Harold Walter Stokes as the new president of New Hampshire university on December 17, 1944.

New student health service buildings are being planned for the University of Alabama, University of Colorado, Connecticut college, University of Delaware, and the University of British Columbia.

Dr. Wm. H. Tutner, Jr., has been appointed physician in the Oberlin college student health service, replacing Dr. Thompson, resigned.

The Tuberculosis committee of the American Student Health association revised and enlarged their booklet on "Social and Economic Aspects of Tuberculosis."

The original edition, published by the National Tuberculosis Association, sold 7,000 copies. Samples of the booklet were sent to all departments of sociology in our colleges and universities.

OLIVER E. BYRD, Ed.D.
Associate Professor of Hygiene
Leland Stanford University

#### VETERAN PLACEMENT BY NORTHROP AIRCRAFT

Harold B. Dye, M.D., chief surgeon for the Northrop Aircraft, Inc., of California, reports that a placement program, by which veterans of this war, particularly those with physical handicaps, may be intelligently moved into industry, has been developed at Northrop Aircraft, Inc., producers of the Black Widow P-61 night fighter. So favorably has this program been received that it promises to serve as a model in many other industries throughout the country.

The Northrop placement program begins at Birmingham General hospital at Van Nuys, California, where the company has established an airplane production department, known as Department No. 99. It contains machines, tools and all equipment necessary for light metal shop work.

Convalescents, nearly all of whom are overseas casualties, are given a short training course and then start on actual production of Black Widow parts, for which they are paid standard shop rates. When these men are discharged for return to civilian life, they are encouraged to take employment at the main Northrop plant.

At the time of his pre-employment interview and physical examination the veteran is assigned to a job in keeping with his physical capacity and past experiences. At this time his personnel folder is marked and a work-limitation form completed which instructs the department supervisor not to transfer him to other work without the approval of the veteran coordinator, the safety engineer and the medical department. This assures the veteran of being placed on work he can do and of being kept on that job until his physical condition is such that he can be safely moved to some other type of work. This appears to be a satisfactory program for the physically handicapped.

The more difficult problem is the placement of those veterans who have been discharged because of a mental disorder, usually a war neurosis.

In the case of veterans discharged because of a mental disorder, their placement in industrial plants immediately after discharge from a hospital does not give them sufficient time to make the necessary adjustments.

These men should be under the supervision of a psychiatrist in order that their emotional lapses can be studied and treated. The majority of them will soon fall into a regular routine and recover from their mental disability if they are not placed where the emotional strain is too great.

The Northrop company has established a training program which is a big step in the right direction. Convalescent patients, at regular wages, are trained in aircraft production work. Upon recovery the veteran who is discharged is adjusted to a special type of work and readily fits into this work. This is primarily for the physically handicapped or injured. The same basic plan could be worked out for the mentally handicapped.

Reference. Dye, Harold B.: "Veteran placement, Industrial Medicine 13:989-90 (No. 12), December 1944.

#### VACCINATION AGAINST TUBERCULOSIS

Wells, Flahiff, and Smith report a ten-year study of the vaccination of patients in a mental hospital at Kingston, Jamaica, with heat-killed tuberculosis germs.

Of the patients who were not infected with tuberculosis on admission to the hospital 325 were vaccinated with heat-killed tubercle bacilli. Among these persons 45 developed tuberculosis. In a corresponding control group of 312 persons who were not vaccinated against tuberculosis there were 68 cases of the disease.

Evidence showed, however, that the protection which may result from the injection of dead tuberculosis germs is not effective immediately and is not an absolute protection, especially if the person is exposed to repeated massive infections.

Statistically there appears to be some value in the method. During the entire ten years 13.8 per cent of the vaccinated group developed tuberculosis, compared with 21.8 per cent of the unvaccinated control group.

The study suggests rather than proves that there may be a practical use for heat-killed tubercle bacillus vaccine in certain groups of individuals who may be exposed to unusual risk of tuberculosis infection. The authors suggest that such groups might include medical students, pupil nurses, hospital attendants, household contacts and possibly others.

Reference, Wells, C. W.; Flahiff, E. W., and Smith, H. H.: "Results obtained in man with the use of a vaccine of heat-killed tubercle bacilli," American Journal of Hygiene 40:116-26 (No. 2), September 1944.

# CHANCES OF SPREADING SCARLET FEVER IN THE FAMILY

H. O. Swartout, M.D., and W. P. Frank, M.D., report on a study of 250 cases of scarlet fever that occurred in the Alhambra, California, district from 1939 to 1943.

Of the 250 cases, 231 were treated at home. In this group there were 383 persons between the ages of six months to 19 years who were exposed to the infection. Out of this group 60 developed scarlet fever within forty-eight hours or longer after the original case.

Of the 250 cases, 19 were treated at the contagious

disease hospital or at home with the other children removed. In this group there were 60 children who might have gotten the disease, but no cases of scarlet fever occurred among them.

Of the 550 adults in the family who were exposed to scarlet fever only 6 developed the infection from the original case.

From this survey it becomes apparent that 1 out of every 6 or 7 children in the family who are susceptible to scarlet fever will get the disease from the sick member of the family during the quarantine period. Only a small number of adults will develop the disease, namely between 1 and 2 per cent.

Reference. Swartout, H. O., and Frank, W. P.: "Contagiousness of scarlet fever," California and Western Medicine 61:72 (No. 2), August 1944.

#### MAYO MEMORIAL COMMITTEE

The Mayo Memorial Committee of Founders sponsored a dinner in Minneapolis on June 5 on which occasion the two principal guests were Vice Admiral Ross T. McIntire, surgeon general of the navy and Dr. Jas. L. Morrill, then president of the University of Wyoming; since made president of the University of Minnesota. Both guest speakers visualized unlimited possibilities for advancement of medical research, greatly affecting the nation as a whole. Both emphasized the great need for a center for medical research, teaching and administration, the \$2,000,000 twelve-story building to be erected at University of Minnesota to perpetuate the memory of Dr. William and Dr. Charles Mayo. Admiral McIntire in tracing the medical advances made by the navy during the war said, "We have no right to make the mistakes we have made in the past so far as medical research is concerned. And you who are instrumental in setting up this great research center will help to remedy in the future those frightful conditions such as we found American youth to be in at the start of the war." Praising the medical achievements of the Doctors Mayo, both speakers congratulated the people of the nation for their foresight in selecting and making possible such a memorial.

"The need for co-operation, for partnership, must have been in the minds of the Mayo brothers when they established the Mayo Foundation, and the University will try to be worthy of this later testimony to their faith," Dr. Morrill said. Formation of a national committee for the memorial, to be headed by John S. Pillsbury, Minneapolis, was announced by Dr. Donald J. Cowling, retiring president of Carleton college and chairman of the Committee of Founders. Dr. Cowling also suggested that Commander Harold E. Stassen be asked to become chairman of an international committee now being formed. Over \$500,000 in contributions toward the research center have been received, Dr. Cowling said. The Minnesota state legislature has appropriated \$750,000 and it is planned to ask for \$250,000 more at the next legislative session. The additional half million dollars is being sought in private gifts.

### MEET OUR CONTRIBUTORS

Among the varied and human pleasures of medical publishing not the least is the one that concerns our contributors, their educational backgrounds, their personalities as revealed by their unitings. That our readers may shate this pleasure with us' is the reason for these brief notes.

Dr. Paul Henry Holinger specializes in broncho-esophagology and laryngeal surgery and practices in Chicago. After graduating from Northwestern university, he went to Philadelphia to Temple university where he worked in Chevalier Jackson's bronchoscopic clinics. He has served as secretary of the American Broncho-Esophagological association and secretary-treasurer of the American College of Chest Physicians. He is a member, too, of the American Laryngological, Rhinological and Otological and the American Laryngological association.

Dr. Gordon Richard Kamman of St. Paul, Minnesota, received his academic and medical training at the university of Minnesota after which he studied his specially, neuropsychiatry, at the Queen's Square hospital in London, the university of Zurich in Switzerland and at Harvard. He is chairman of the advisory committee to Minnesota's bureau of the feelbeminded and epileptic, past president of the Minnesota Society of Neurology and Psychiatry, a member of the American College of Physicians, and national and state psychiatric associations.

Dr. Chester W. Lawson is practicing in Havre, Montana, after his return about a year ago from Canton, China where he and his family were interned at the outbreak of the war. He received his medical degree from Johns Hopkins medical school, and went to China as medical missionary when he had completed his course at the Boston Lying-in hospital.

Dr. Orville Morris Moore (Helena, Montana) received his MD. at the Nebraska Universus medical school in 1938. His graduate work consisted of an internship and resident pediatrician at Vancouver general hospital, Vancouver, B.C., and a pediatric fellowship at Minneapolis General hospital. He is a member of Lewis & Clark county medical association and has practiced in Helena for three and a half years.

Dr. Frederick William Hoffbauer (St. Paul), university of Minnesota B.S. 1934, M.S. 1935, and M.D. 1938, did graduate work at the same institution in the departments of physiology and medicine. He has practiced here for nine years, specializing as an internist. Dr. Hoffbauer holds memberships in Minnesota society of internal medicine, Minnesota pathological society, American diabetic association and the Central society and American federation for clinical research and received the Hormel Research Foundation award 1944 to 1945.

Dr. Erling W. Hansen, Minneapolis, clinical professor and director of the division of ophthalmology at the university of Minnesota, received his degree from that university, did graduate work there and in New York and Vienna preparing himself for his specialty, ophthalmology. During World War I he served as medical officer with the First division and was decorated with the French croix de guerre and the United States silver star. His society memberships are too numerous to enumerate here and they include the American College of Surgeons and both national and local ophthalmological and toolaryngological societies in several of which he has held important offices. He is the present president of the Minneapolis Academy of Medicine.

Dr. Fred W. Wittich, Minneapolis, was graduated from Johns Hopkins medical school in 1913, had postgraduate training at Johns Hopkins, the Trudeau Sanitarium and the university of Minnesota, and now specializes in internal medicine and allergy. He has served the university of Minnesota as assistant professor of medicine and assistant chief of the medical clinic. He is a fellow of the American College of Chest Physicians, of the American College of Allergists and of the American Academy of Allergy; a member of various other national and local societies and of the honorary Sigma Xi. He is also an honorary member of the Argentine Allergy society. He is now secretary of the editorial board of the Annals of Allergy.

Dr. Carl Warren Laymon, Minneapolis, specializes in dermatology. After receiving his medical degree at the university of Minnesota he spent three years in graduate work there and won his doctorate. He is a member of the American Dermatological association, and of the Minnesota and Chicago Dermatological societies. He holds membership also in Alpha Omega Alpha and Sigma Xi.

Dr. Walter Lees Hoffman, Minneapolis, is assistant professor of ophthalmology at the University of Minnesota from which he received his medical degree in 1936. In preparation for his specialty, he spent three years as a fellow in ophthalmology there. Besides his membership in national and local medical societies, he is a member of the American Academy of Ophthalmology and of the Minnesota Academy of Ophthalmology and tololaryngology.

Dr. Harry A. Cumming, Minneapolis, spent three years as fellow in dermatology and syphilis at the university of Minnesota, after graduating from that university's medical school He is secretary of the Minnesota Dermatological society, a member of the American Academy of Dermatology and of the national and state medical societies.

Dr. Stanley R. Maxeiner, graduate of the University of Minnesota, worked for ten years as the assistant to Dr. Robert E. Farr, during which time he studied at numerous clinics in England, France, Belgium and the United States to perfect himself in his specialty, general surgery. He is a Clinical Assistant Professor of the Department of Surgery, University of Minnesota and a consultant in Surgery, for United States Veterans Administration; a fellow of the American Collège of Surgeons and, also, a member of numerous local and national surgical societies.

#### Book Reviews

Malaria in the Upper Mississippi Valley, 1760-1900, by ERWIN H. ACKERKNECHT. Baltimore, Md.: Johns Hopkins Press, 142 pages, 1945, \$2.00

This timely monograph (a supplement to the Bulletin of the History of Medicine), should be of special interest to residents of this section of the country, not only because it brings to light many unfamiliar facts of our malarial history, but also in that it warns of the possible resurgence of this disease with the return from the Pacific of our soldiers.

The states included in the study are Illinois, Missouri, Iowa, Wisconsin and Minnesota The author admits the difficulties of a verified basis for his conclusions concerning the earlier days, due to the lack of statistics, the scarcity of medical men and the confusion of diagnoses, but he feels that the evidence of explorers and the marked similarity of experience in all the states studied justify these condisions. These are briefly: there was little malaria in the period of exploration, following the pioneer invasion malaria reached epidemic proportions that varied merely in degree (lowest, but still high in Minnesota), after repeated fluctuations the disease retreated rapidly with the settling and growing prosperity of these states, to become almost non-existant except in a few isolated regions.

almost non-existant except in a few isolated regions. A careful analysis is given of the causes for this decline as suggested by health officers and other epidemiologists; there is an interesting chapter on the history of the use of cinchona bark and quinine which, the author thinks, have played but a minor part; comparison of malarial conditions in other sections of the country is made. The author concludes that not one but many factors contributed to the disappearance of the disease in these five states. An interesting point is his finding that the increase in dairy cattle played a major part in Iowa, Wisconsin and Minnesota. In all five the artest of population movements, the installation of railroads, the increase in wealth and climate seem to have been primary factors in the decline.

In spite of 30 years of intensive anti-malarial activity there

In spite of 30 years of intensive anti-material activity there are still in the United States an average of 4,000,000 cases a (Continued on page 261)

(Continued on page 20



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MINNEAPOLIS, MINNESOTA, JULY, 1945

#### ANXIETY NEUROSIS

We feel it safe to assert that no pandemic in the history of man has ever attained a numerical magnitude and geographical distribution commensurate with the anxiety neurosis that has afflicted the inhabitants of this globe during the past few years.

We do not refer only to those extreme cases that develop on the battle field; naturally the nearer to the actual fighting the greater are the casualties. These are the immediate problems of members of the medical corps who have not only done a fine job in eliminating, so far as possible, psychoneurotic personalities long before they reached the battle front, but equally have they recognized the urgency of prompt, on-the-spot treatment of mental crack-up cases. We are thinking about the entire population. Those not serving with the armed forces are nevertheless exposed to incidental disturbances. There is an emotional upset at family partings. There is an uncertainty as to the whereabouts and welfare of loved ones. There is a lurking fear in the anticipation of a personal loss, and grief on its confirmation. There is stress of work and nervous strain in doing and giving to the utmost. There is a desire to keep posted hourly on the latest news, but commentators on air and paper differ in the interpretation of its significance and its effect on future events, and so the earnestly groping mind becomes confused by conflicting statements.

Sometimes organic disease may be simulated by a purely functional disturbance while in other cases one may be superimposed upon the other, calling for a dual perspective on the part of the diagnostician if he would properly evaluate the factors involved.

#### TAKING AN INVENTORY

There would seem to be no doubt that the demand for hospital care will be far greater after the war than ever before. Ten million men and women in the atmed forces will return with a new realization of what medical and hospital service can mean to them personally. At home hospital insurance and higher economic levels have made it possible for thousands to learn at first-hand the advantages of hospital over home treatment for illnesses. The number of hospital beds added each year throughout the country has increased far faster than the population and is now ten times as great as it was in 1943. But the aim to provide adequate hospital care for every person needing it at a price commensurate with what he can pay is far from reached.

Before this goal can be even approached many weighty problems will have to be solved; problems of costs, of better management, of higher professional standards, of adequate medical talent, and perhaps most complex of all, the problem of the satisfactory distribution of hospitals and health centers that they may be accessible to those completely removed now from health facilities.

That there has been a general maldistribution of medical services throughout the country is generally accepted but something of its real significance is gained from the statement of Surgeon-General Parran that approximately 1,200 counties with a 1940 population in excess of 15,000,000 persons have no recognized hospital facilities whatever. This in addition to the hundreds of hospitals now operating under inadequate conditions by reason of war shortages or what not.

The solution of these problems will require the efforts and cooperation of some of the best minds in the country; of government officials, national and local, of professional men and women, of hospital executives, of business men, of labor, of women's organizations. But before the first steps can be taken we must have a complete picture of the medical resources and specific needs of every state in the country.

Fortunately such a picture is now in the making. Last fall, through the efforts of the American Hospital Association and financed by the Commonwealth Fund, the W. K. Kellogg Foundation and the National Foundation of Infantile Paralysis, a Commission on Hospital Care was established with headquarters in Chicago and given the job of making an inventory of the Nation's hospital facilities. Its members include doctors, dentists, nurses, hospital executives, public health workers, representatives of labor and industry, specialists in sociology and economics. Its objectives are "to take a census of the present hospital and public health facilities in the nation; appraise their capacity for service; establish standards for evaluating physical facilities, organization and management of hospitals; determine the overall national need for additional facilities and service; formulate a national coordinated hospital plan and to suggest methods by which that plan can be realized."

Already 35 states are at work on their surveys. Among these of our own northwest are Iowa, Minnesota and North Dakota. Montana is among those in which survey organizing committees have been established. The

Commission on Hospital Care will act as a coordinating body for the state committees and furnish a standard questionnaire as well as technical consultants,

The medical profession should be especially interested in promoting this work. It cannot fail ultimately to bring about a radical improvement in the general health of the state and it may very well help solve the problem of keeping its brilliant young medical graduates from seeking wider opportunities afar where they can find the laboratories and hospitals they need for their scientific work.

The address of the Commission is 22 East Division, Chicago 10. The Director of Study is Dr. A. C. Bachmeyer.

M.U.

#### BOOK REVIEWS (Continued from page 259)

year, with 5,000 deaths. History, moreover, teaches that epidemics of malaria have been known to have reappeared nearly a century after their disappearance. Dr Ackerknecht warns us: "it may be well to remember that malaria in the Upper Mississippi Valley was not killed by a single magic bullet; the monster was only put in chains, the links of which we have tried to study. Each link of the chain is important, and the breaking of one link may set free again the evil fiend."

The Autobiography of Science, edited by Forest Ray Moulton and Justus J. Schifferes Garden City, N Y Doubleday, Doran & Co., 666 pages including a selected list of headings and index, 1945, \$4.00.

In this fine anthology the editors have chosen from their original outline of 300 names those of 100 scientists whose work they regard as marking "turning points" in the story of science from its first wistful gropings in antiquity down to the present, and have recorded passages from their writings describing "the best thing a man ever said or wrote about the most important thing he ever did or thought." Preceding the quotations from the scientists they have contributed biographical notes and commentaries, a preface and an introduction in which they tell of their aims in preparing their book, and with much charm, disarm criticism of the inveitable omissions. The chronological sequence by periods has been followed and although the reader will miss many names he would like to have had included, the net result will be that he will find himself participating exitedly as seep by step the order-loving thinkers of the world lead manking from supersition to truth.

the world lead mankind from superstition to truth.

Let no one think this is a dull book. On the contrary it is full of drama and entertainment. It is not a mere group of quoted sentences and paragraphs. Some of the passages are several pages long, and always enough is given to insure understanding of each man's specific contribution. Indeed to most readers the most surprising aspect of the book will be its readablity. A truly great scientist is a man of wird imagination, a creative aritist burning with an almost fanatical zeal to solve a secret and he writes of his theories and discoveries almost always with unexpected clarity and often with a remarkable literary style whether he be an Oiler or an Hippocrates.

Much credit is due the editors. The book has demanded not only careful research but a feeling for what they call "the culture of science." Moulton was for many years professor of astronomy at Chicago university and is widely known for his scientific publications; Schifferes, a former Minneapolitan, edited Modern Medicine for eight years and has not only written many scientific articles but plays which have been produced in several cities. Richard Scammon of the University of Minnesota helped them greatly in their selections. This reviewer heartily concurs with their advice to their readers: "There are six ways to read this book: as a story-book, a history book, a textbook, a reference book, a source book, or a chronicle." We would add a seventh—as a bedside book. It won't make you sleepy but it will send you off with a comforting faith in man and his future.

## News Items

Governing bodies of the North Dakota state medical association held a two-day meeting in Valley City May 20. The opening ceremonies included an address by the president, Dr. F. L. Wicks. Reports of the officers and of standing and special committees were made and referred to reference committees. Dr. James F. Hanna of Fargo was inducted as president for the coming year.

South Dakota state medical association's annual business meeting (of the council and house of delegates) was held June 9 and 10 at Watertown with Dr. D. S. Baughman presiding. Dr. William Duncan was elected president for the coming year.

The second annual meeting of the North Dakota public health association was held at the state university May 25 and 26. The guest speaker was Dr. Haven Emerson, president emeritus of public health practice, Columbia university, his subject, "Local Health Units, the Basis of National Health." The program included inspection tours of the blood plasma and public health laboratories. Dr. F. C. Lawler, professor of bacteriology and immunology of the university of North Dakota contunues as president of the association.

Dr. R. G. Mayer, secretary of South Dakota state medical association, returned early in June from two week's stay in New York City, during which time he attended a course in recent advances in neurology at the New York Post-Graduate medical hospital.

Dr. E. S. Stenberg, Sioux Falls, South Dakota, is at the Mayo clinic, Rochester, Minnesota, as this issue is being made up.

The Minnesota state board of health has elected Dr. Ruth E. Boynton of Minneapolis to its presidency.

The D.P.'s (displaced persons) program of UNRRA has drawn Lieutenant Colonel Chas. E. Proshek of Minneapolis into its service as an area medical officer. Dr. Proshek has already been commissioned by the army and has left for Europe. This appointment is a direct result of outstanding service to the Red Cross in World War I.

The Montana members of the American College of Physicians held a meeting at Hamilton, May 5. Major Glenn Kohls, member of the United States army typhus commission gave an illustrated talk on scrub typhus.

The house of delegates of the Minnesota state medical association at its meeting held in St. Paul May 21, took action toward the establishment of a state-wide non-profit, prepaid medical service organization in accordance with an act passed by the 1945 legislature. Eighteen doctors, two from each of the nine districts in the state, were named and directed to name three others at large, to form a temporary board of directors to prepare articles of incorporation for the service. Dr. Burt Branton of Willmar is temporary chairman. At this its 92nd annual meeting the association elected Dr. Edward Simons, Swanville, president, to take office January 1st.

Dr. G. Wilson Hunter, F.A.C.S., Fargo, North Dakota, and member of the International College of Surgeons, has been named delegate to the International College convention to be held in Lima, Peru, in September. Dr. Hunter is head of the department of obstetrics and gynecology at the Fargo clinic.

Dr. Carl J. Baumgartner, Bismarck, North Dakota, was named the outstanding president of the state's Junior Chambers of Commerce during the past year and was awarded the Jaycee key.

Dr. Robert Kamish of LeSueur county recently received the legion of merit award on Okinawa and was promoted to a full colonel for his exceptional work in training and equipping medical units for the Leyte amphibious operation in the Philippines. Colonel Kamish is a graduate of the university of Minnesota.

In order to keep up with the standards of the American Medical association, North Dakota will need 12 additional practicing physicians in the state. Today there is one physician for every 1,994 persons.

The Public Health League of Montana has opened permanent offices in Helena, announces Mrs. H. W. Peterson of Billings and president of the organization. The setting up of permanent facilities for carrying out the league's purpose of promoting the highest standards of public health was decided upon by the board of directors, representing medical men, dentists, optometrists, pharmacists, hospitals, nurses, and lay groups devoting themselves to the prevention of the communicable and contagious diseases.

The league will serve as a clearing house for public relations activities of the various affiliated groups, aid in conducting programs of information regarding affairs and activities which affect public health, co-operate with existing public health agencies and protect the interests of the public through health campaigns, crusades and activities, the president explained.

Directors of the league, which was incorporated nine months ago, are Mrs. Peterson, field commander for the northwest region of the American Cancer Control Army; Milo F. Dean of Great Falls, representing the Montana Hospital association; Dr. J. M. Flinn of Helena, Montana Medical association; Mrs. Frances Macdonald of Great Falls, Montana State Nurses association; Dr. E. A. Kuntz of Helena, Montana Optometric association; George Gosman of Dillon, Montana Pharmaceutical association; Dr. Harvey Fearn of Bozeman, Montana State Dental association; George Hutton of Billings, Montana Tuberculosis association; the Rev. Frank L. Harrington of Butte, Catholic Hospital association; the Blue Cross Hospital Service association, and J. L. Markham of Butte, director at large. The Rev. Harrington is vice president and Milo F. Dean, secretary-treasurer.

Dr. E. J. Tanquist of Alexandria, Minnesota, is general chairman for Minnesota's 24th annual Resorters' golf tournament, to be held August 1 to 5 on the famed Alexandria Golf Club course (all-watered, 18 holes).

Dr. Neil M. Leitch, formerly of Warroad, Minnesota, has established practice at Kalispell, Montana.



"Old Scratch" is the constant tempter of the pruritus victim...for it is next to impossible to control scratching—so often the cause of secondary infection—unless an analgesic agent is available to relieve the torment of itching.

'Caligesic' Analgesic Calamine Ointment is a greaseless, bland ointment that has proved useful in the temporary relief of pruritus and skin irritations, such as those caused by poison ivy, poison oak and insect bites. It does not stain the skin and can be safely used on children. The protective, astringent, anesthetic properties of 'Caligesic' Ointment arrest the desire to scratch and bring prompt, soothing relief in the treatment of dermatitis venenata, summer prurigo, pruritus ani, pruritus scroti and other skin irritations and inflammations.

For external application only, each 100 Gm. of 'Caligesic' Ointment contains: Calamine, 8.00 Gm.; Benzocaine, 3.00 Gm.; Hexylated Metacresol, 0.05 Gm. Supplied in 1½ ounce tubes. Sharp & Dohme, Philadelphia 1, Pa.





It has been decided that the House of Delegates of the Montana State Medical association will meet in Helena July 14 and 15, Saturday and Sunday.

The annual meeting of the women's auxiliary to the Minnesota state medical association was held in St. Paul May 17 and 18. Dr. William A. O'Brien of the University of Minnesota spoke on "The Evolution of Medicine" at the annual luncheon.

During 1944 more than sixteen million patients—approximately one of every eight persons in the United States—were admitted to hospitals. Hospital service in the past ten years has more than doubled. "The great increase in hospital service in recent years is due to an increase in public understanding of the importance of good hospital and medical care, rather than to an increase in illness" states the American Medical Association.

A questionnaire was recently sent to medical officers and a study of 35 per cent of those on duty in the Army, Navy, public health service and veterans' administration showed that nearly sixty per cent want to take six months' or longer courses of further training in hospital or other educational work after the war, and sixty-three per cent want to become certified specialists. The ten most popular fields in order of frequency for which requests for training were made are: surgery, internal medicine, obstetrics and gynecology, general review, psychiatry and neurology, pediatrics, orthopedics, ophthalmology, radiology and otolaryngology.

Funds for the building of a nonprofit, cooperative hospital at Ronan, Montana, have already reached \$17,000. The approximate cost of the building is estimated at \$75,000. A bond issue of \$50,000 has been authorized and only \$8,000 remains to be raised before construction will be started. The plans call for an entirely modern hospital which will be approved by the state health authorities, and is sponsored by the three Protestant churches of the community. An interesting item is that the farmers have subscribed generously and seem especially interested in the plan to operate it cooperatively.

#### HONORARY DEGREE FOR DDT RESEARCH DIRECTOR

Basle University, Switzerland, has conferred the honorary degree of Doctor of Medicine upon Paul Laeuger, technical director of J. R. Geigy, the Swiss organization which brought out the insecticidal properties of DDT. The award to Laeuger was made for his work in Gesarol, Neocid and other DDT compositions.

Neocid is a composition which was used with great success combating typhus in Naples and is now being used against the malaria mosquito in the Pacific. Gesarol is a DDT composition used against agricultural pests.

The bestowal of a medical degree on Dr. Laeuger recalls that staff members of the office of the Surgeon General of the Army have extolled the exceptional properties of DDT in the prevention of certain dreaded diseases among troops and civilians in battle areas. (See JOURNAL-LANCET lecture by Brig. Gen. Jas. S. Simmons, in February issue.) Clyde Harold Fredrickson, MC, Missoula, Montana, has recently been promoted from lieutenant colonel to colonel.

Dr. L. M. Hammer, Two Harbors, Minnesota, has reported to San Francisco for active duty with the navy, having received his commission as lieutenant, senior grade, with the naval reserve.

On July 27 the Army medical department will observe the 170th anniversary of the establishment of the first medical service for the American army. The medical department had its inception in the creation of a hospital by the continental congress shortly after General Washington assumed command in the Revolutionary war.

## Fall Refresher Course in Laryngology, Rhinology and Otology at University of Illinois College of Medicine

The University of Illinois College of Medicine announces its sixth semi-annual refresher course in laryngology, rhinology and otology, September 24 through September 29, 1945, at the college, in Chicago. The course is intensive and largely didactic, but some clinical instruction is also provided.

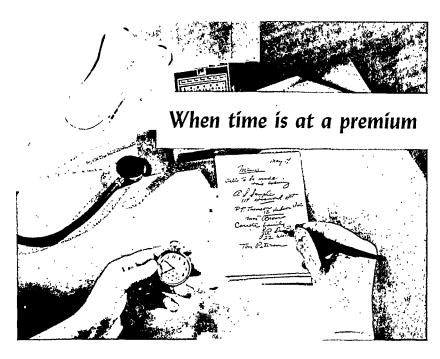
It is especially suited to specialists unable to devote a longer period for advanced instruction and to others seeking a comprehensive review of the field of otorhinolaryngology. The number of registrants will be limited. It is therefore desirable to apply for registration immediately. The fee is \$50. When applying, give full details as to school and year of graduation, postgraduate training, college degrees, etc. Write to Dr. A. R. Hollender, chairman, Refresher Course Committee, Department of Otolaryngology, University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12, Illinois.

## Necrology

Dr. Max W. Alberts, 46, St. Paul, Minnesota, died suddenly June 11, while driving his car after completing an operation at St. Joseph's hospital. Dr. Alberts was associate professor of surgery at the university of Minnesota, associate chief of surgery at Gillette state hospital for crippled children, and a member of Ancker, Miller, St. Joseph's and St. John's hospitals of St. Paul. He was physician for the St. Paul baseball club.

Dr. W. M. Dodge, Farmington, Minnesota, 78, died in Miller hospital after a prolonged illness. Dr. Dodge was one of the county's earliest physicians.

Dr. A. H. Bouman, 75, Minneapolis, died June 19 in Minneapolis. Dr. Bouman was born in Germany and received his academic education there, graduating from the Univeristy of Minnesota Medical School in 1897. He was a member of the American College of Surgeons and a well-known practitioner in Minneapolis.



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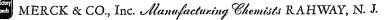
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Aznoe's, established in 1896, has available a number of well trained physicians (diplomates of the specialty boards, industrial physicians and surgeons, general practitioners, psychiatrists, tuberculosis specialists and residents). For histories, write Ann Woodward, Aznoe's-Woodward Medical Personnel Bureau, 30 North Michigan Ave., Chicago 2, Ill.

**EQUIPMENT FOR SALE** 

1) Operating sterilizer, electric, volt 110, from Wilmot-Castle Co., Rochester, N. Y., original cost, \$232; 2) Intratherm short wave apparatus, Paul E. Johnson, Chicago, model 17 P, original cost, \$450; 3) Burdick colonic lavage apparatus, original cost, \$150; 4) one polariscope, Franz Schmidt & Haensch, Berlin, cost price, \$100; 5) one wood examining table; 6) obstetrical instruments at 50% of catalog list price. For inspection phone Dr. E. Klaveness, St. Paul, Nestor 6707, between 2 and 5 p. m.

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Available July 1st, doctor's office, good south Minneapolis location on streetcar and bus lines. Heat and hot water furnished, step-on faucets, portable telephone plugs, buzzer system. Beautifully decorated; venetian blinds: indirect lighting. X-ray and developing rooms. Reasonable rent. Owner, S. Holland, 3615 - 18th Ave. South, Minneapolis 7, Parker 2249.

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Roosevelt electric outdoor motor chair for amputee unable to use artificial limb. Electric charger accompanies chair. New, the chair sells for \$325 f.o.b. Chicago. Has had four months use; in very good condition. Will sacrifice and can make immediate delivery f.o.b. this east central North Dakota point. Make an offer, addressing Box 822, care of this office.

### Advertisers' Announcements

"THE DOCTOR FIGHTS"

Schenley Laboratories, Inc., is presenting a twelve-weeks series of broadcasts over the Columbia Broadcasting System; the first on June 5 at 8:30 P. M., C.W.T. The series, entitled "The Doctor Fights," features leading Hollywood dramatic motion picture stars in half hour dramatizations of the actual feats accomplished by medical officers of the armed forces during World War II. In many instances, the actual surgeons or physicians whose deeds will form the highlight of the dramatic program are themselves heard in the broadcasts. Included are such instances of extraordinary devotion to duty as those of Major Livingston Pope Noell, Jr., the physician who elected to stay with the litter cases on Bataan when the hospital unit and all the nurses were evacuated to Corregidor, the heroic three days in July last year when Captain James E. T. Hopkins treated 80 casualties during the battle for the Munda air strip on the Solomon Islands, and other similar case histories from actual service files.

#### WYETH ADVERTISING CITED

With paintings occupying four of the three hundred places set aside in the "human interest" group, at the 24th Annual Exhibition of Advertising Art, held in New York from April 10 to 29, inclusive, Wyeth, Incorporated, of Philadelphia, has again scored heavily with the experts. Each of these paintings dramatically emphasized the Wyeth message to consumers: "Save your doctor's time in wartime."

"But it's my last night, Dad—can't another doctor go?" is the G. I.'s appeal in one of this series, which, in addition to recognition by the Art Director's Club, has been chosen for inclusion in the hundred outstanding advertisements to receive Wartime Advertising Awards.

#### LYNORAL—NEW ORAL ESTROGEN

Roche-Organon, Inc., manufacturers of endocrine preparations, recently announced to the medical profession a new oral estrogen preparation called Lynoral. Lynoral is ethinyl estradiol, the most effective estrogen for oral administration. It is closely related in chemical structure to alpha-estradiol, the natural follicular hormone, yet does not lose its efficacy when given per os. The majority of investigators have evaluated its therapeutic efficacy as at least 5 to 10 times that of stilbestrol. Most patients can take Lynoral with no complaint of undesirable by-effects. Even in those few patients who may develop gastric symptoms, the symptoms usually disappear promptly when the dosage is reduced to its minimal effective level. Lynoral is indicated in the menopause, infantilism, senile and juvenile vaginitis. and other disorders responsive to estrogen therapy. A daily dosage of 1 to 3 Lynoral tablets (0.05 to 0.15 mg.) usually elicits an excellent response from the menopausal patient. Recent clinical studies indicate that the experimental use of Lynoral may be of value in the symptomatic treatment of prostatic carcinoma. Lynoral is available for the physician's prescription in bottles of 30, 60, and 250 scored tablets, each containing 0.05 mg. of ethinyl estradiol. Descriptive literature will be furnished upon the request of the physician.

#### NEW STRENGTH GLOBIN INSULIN (Burroughs)

As a result of the widespread demand from the medical profession, Burroughs Wellcome & Co. have released a new strength of 'Wellcome' globin insulin with zinc, 40 units in 1 cc., in vials of 10 cc., list price \$1.15. This strength is particularly suitable for the milder cases of diabetes where fewer units are needed for diabetic control. This new product is readily identified by its distinctive red and tan label. The original packing of 80 units per cc., vials of 10 cc., will be maintained for use particularly in the moderate and severe cases of diabetes and is identified by its characteristic green and tan label.

#### UPJOHN EDUCATIONAL CAMPAIGN ON RHEUMATIC FEVER

The sharp increase of rheumatic fever among children and its prevalence among our armed forces have centered considerable attention on this serious medical problem. In New York City alone, rheumatic fever is reported to kill five times as many children as six common reportable diseases combined.

To cooperate with physicians, public health services and the newly formed council on rheumatic fever in fighting this crippling disease, The Upjohn Company devoted its "Your Doctor Speaks" message in May issues of Saturday Evening Post, Time, Parents' Magazine and other national publications to a challenging appeal. Facts of vital concern to readers were given. Since early diagnosis and medical care are highly important in reducing the severity of attacks, heart damage, and mortality, the Upjohn message asked the readers to "work with your doctor in conquering rheumatic fever." Readers were advised to call the doctor immediately when signs such as fleeting pains in the joints, fever, or jerks in arms and legs appear. Readers were told to follow the doctor's instructions carefully to help avoid recurrence, and to have the child examined regularly. Physicians, public health men, and national organizations were invited to contribute suggestions while the Upjohn advertisement was being prepared. Letters to the company expressed appreciation not of the text alone, but of the beautiful full color illustration by John Koch depicting a typical scene in the life of a child with rheumatic fever, a tired-looking little girl patient receiving a visit from playmates.



The greatest skill in any field is but outward evidence of the highest measure of control.

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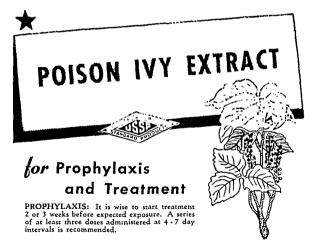
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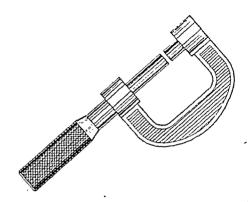


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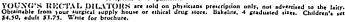
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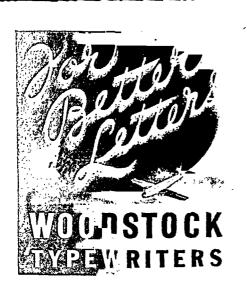
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ONE

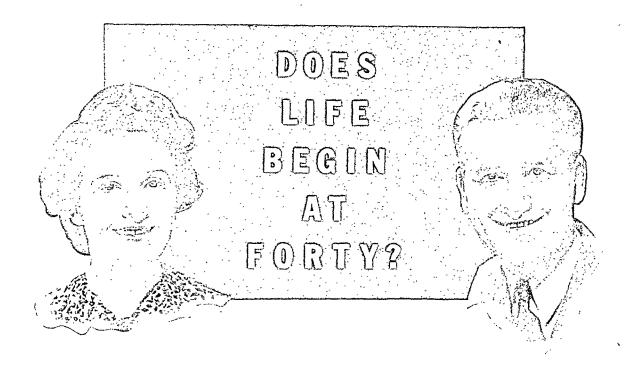
ONE

level tablespoonful of Pablum (or Pabena) when mixed with . . . tablespoonful of milk, formula or water (hot or cold) makes... rounded tablespoonful of cereal feeding of average consistency.

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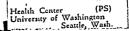
Prescribed for middle-aged and elderly patients, Taka-Combex Kapseals are helpful for the prevention or relief of vitamin B complex and vitamin C deficiencies, particularly when these patients need assistance in digesting starchy foods.

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New Series Vol. LXV, No. 8

TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION



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#### August, 1945

The Kenny Concept and Treatment of Infantile Paralysis, John F. Pohl, M.D
Observations on Tropical Disease, Joseph A. Holmes, Lt. (MC) USNR, F.A.C.S. 2726-272
Transactions of the North Dakota State Medical Association, Fifty-eighth Annual Session 270
Report of Committee on Medical Economics 284
Schedule of Surgical and Obstetrical Benefits289
Report of Committee on Medical Economics  Schedule of Surgical and Obstetrical Benefits  North Dakota State Medical Association District Roster  Alphabetical Roster of North Dakota State Medical Association 1945  303
Alphabetical Roster of North Dakota State Medical Association 1945
BOOK REVIEWS 308
EDITORIALS at 1869 of emales ablished
Sister Kenny—Fiver Years After A CX Stories 309
Capital Punishment for Capital DES DES DES 310
Schedule of Surgical and Obstetrical Benefits  North Dakota State Medical Association District Roster  Alphabetical Roster of North Dakota State Medical Association 1945  Address of the President of the Association, F. Lewicks, M.D. and State Medical Association 1945  BOOK REVIEWS  EDITORIALS  Sister Kenny—Fiver Yaparafter  Capital Punishment for Capital Major Provisions of the Wagney-Murray Direct Bill  Major Provisions of the Wagney-Murray Direct Bill  NEWS FIEMS  312  NECROLOGY
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Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154 Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60 Proc. Soc. Exp. Biol. and Med., 1934, 32, 241 N. Y. State Journ. Med., Vol. 35, 6-1-35, No. 11, 590-592.

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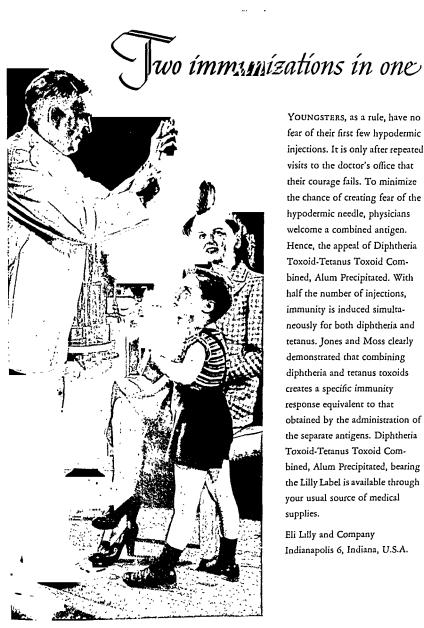
Typhoid Fever

 ${
m A}$  HALF CENTURY of warfare against typhoid

fever has made the disease almost a curi-

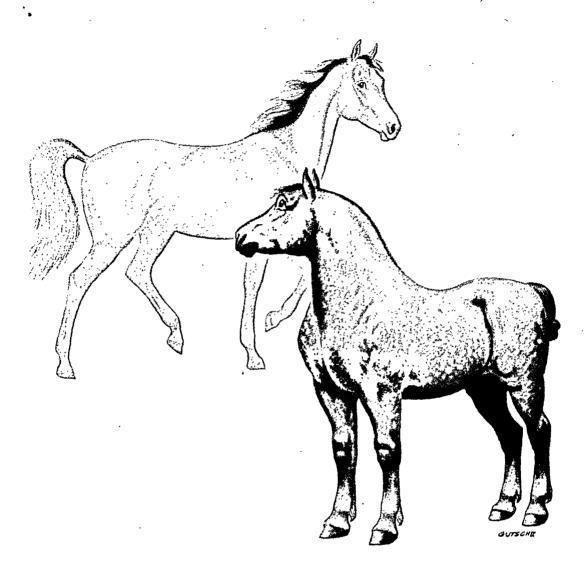
osity. Filtration plants and chlorination, together with scientific disposal of sewage and garbage, are formidable sanitary barriers. Yet now and again these barriers are breached. Wherever hazards exist, those exposed should be vaccinated. The results obtained from compulsory vaccination in the armed forces of the United States have established the efficacy of the procedure.

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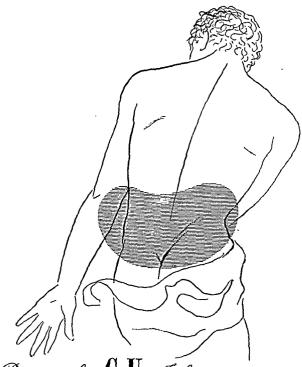
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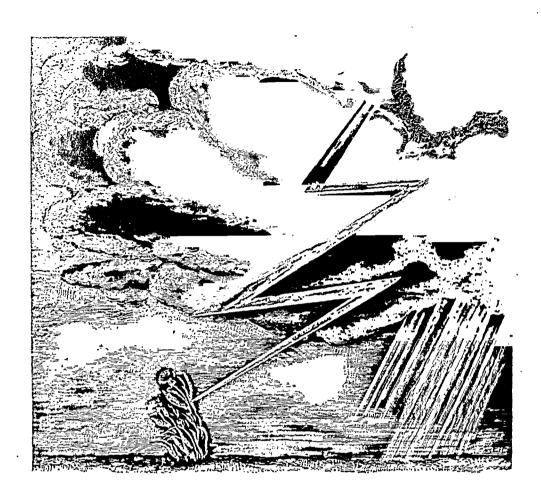


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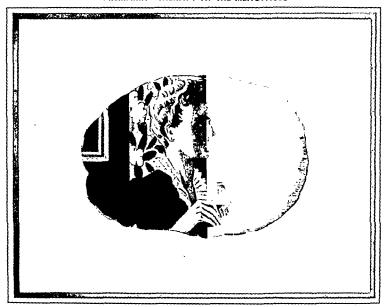


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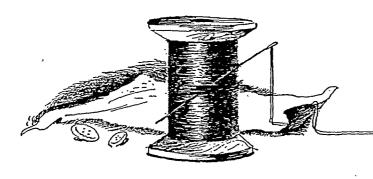
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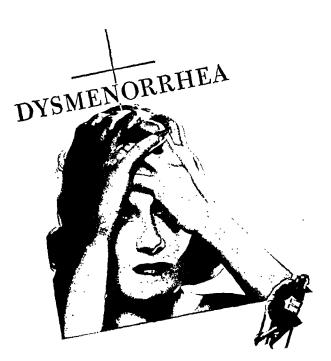
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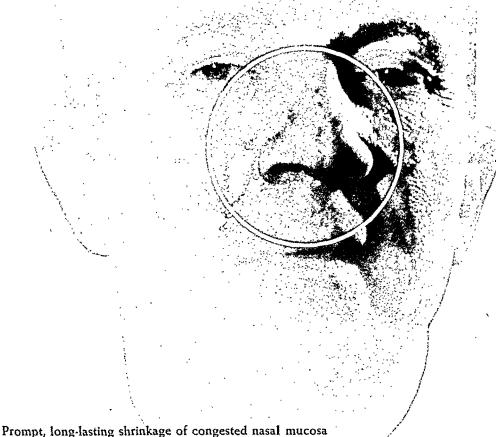


"A more rational approach seems to be indicated in treating dysmenorrhea by attempting to raise the pain threshold, or in some other way, block the sensory pathways to the higher centers of the brain."\* \*Kroger, W. S., and Freed, S. C.: Am. J. Obst. & Cynec. 46-817 (December), 1943.

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## KAOMAGMA Checks Diarrhea

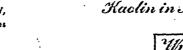
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\*Based on average reported values for milk.

#### REMOVE THE FOUR HYPOS



1. HYPO-EPITHELIUM (a decrease in the number of cell layers composing the vaginal nucous membrane, due to inflammatory hyper-desquamation).

FLORAQUIN by allaying the inflammatory reaction, destroying the pathogenic organisms and providing carbohydrates for mucosal glycogen, facilitates regeneration of the mucosa to normal.





2. HYPO-GLYCOGEN (due to a marked decrease in the number of glycogen bearing cells of the vaginal mucous membrane).

FLORAQUIN makes available carbohydrates, lactose and dextrose, for absorption by the regenerating vaginal epithelium, and storage in the form of glycogen.





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FLORAQUIN provides a bacteriostatic acidity which, mixed with the vaginal secretion, re-establishes and maintains the normal pH of 3.8 to 4.4.





4. HYPO-DÖDERLEIN (a reduction or elimination of the Döderlein bacilli, the normal flora of the healthy vagina).

FLORAQUIN provides the ideal medium for the return and cultivation of the Doderlein bacillus which, by its action upon released glycogen, aids in maintaining normal acidity.



# BROBAQUID

a product of Searle Research, contains the protozoacide, DIODOQUIN, combined with lactose, dextrose and boric acid.

Supplied in powder for office insufflation and tablet inserts for supervised home use.

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Response to *Ertronization*, evidenced by increased motion and muscle strength, decreased swelling, and a generalized systemic improvement, is typical of the findings in large series of reported cases.

The results reported are not of a temporary nature, as they are based on observations over a ten-year period.

The relief obtained from Ertron, both subjective and objective, is a systemic response—not confined to the joint spaces. Since arthritis has been defined over and over again as a systemic disease, this approach is more than amelioratory. It is treatment of arthritis rather than the patient with arthritis. This latter factor, however, must not be lost

sight of, and when analgesia, psychotherapy and physical therapy measures are indicated, they may and should be employed in conjunction with Ertron therapy.

Ertron alone—and no other product—contains electrically activated vaporized ergosterol (Whittier Process).

#### ERTRONIZE THE ARTHRITIC

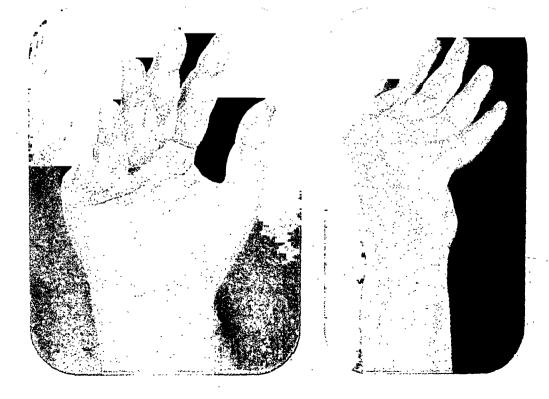
Ertronize Means: Employ Ertron in an adequate daily dosage over a sufficiently long period to produce optimal results. Gradually increase the dosage to that recommended or to the toleration level. Maintain this dosage until maximum improvement occurs.

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Photographs illustrate an advanced case of atrophic (rheumatoid) arthritis showing typical spindle or fusiform shaped fingers with bluish red discolarations. The fingers show a marked subluxation involving especially the second interphalangeal joints with posterior dislocation. The characteristic flexion deformities are fixed due to fibrosis and bony ankylosis. The earlier marked soft tissue swelling has largely disappeared at this stage of the disease. General involvement cervical spine, and bilateral involvement of the feet, ankles, knees, elbows and shoulders. X-ray of the hand reveals a destructive arthritis of the metacarpals with flexion deformity and ankylosis, loss of joint spaces particularly in the distal interphalangeal joints and partial ankylosis of the wrist joint.



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One of the most important requirements of the finished penicillin is freedom from pyrogens. Each manufactured lot of PENICILLIN SCHENLEY is tested (as illustrated above) to insure utmost pyrogen-freedom. When, in placing your order for penicillin, you specify PENICILLIN SCHENLEY... you may do so with confidence... knowing that such measures of uncommon care assure a product of highest standards.





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\*McCune, W. S., and Evans, J. M.: Intraventricular Penicillin in the Treatment of Staphylococcie Meningitis, J. A. M. A. 125:705 (July 8) 1944.

Gould, A. H.: Mixed Bacterial Meningitis Following Cranio-Cerebral Trauma, Rocky Mountain M. J. 41:560 (Aug.) 1944.

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Sweet, L. K.; Dumoff-Stanley, E.; Dowling, H. F., and Lepper, M. H.: The Treatment of Pneumococcic Meningits with Penicillin, J. A. M. A. 127:263 (Feb. 3) 1945.

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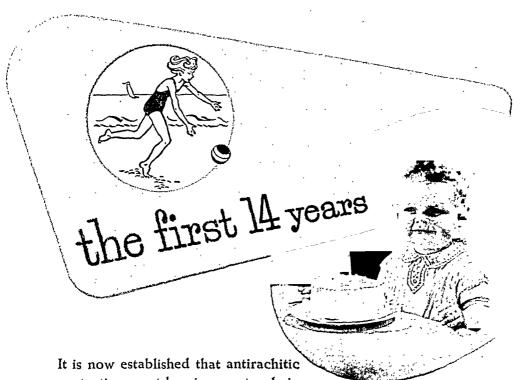


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> Follis, R. H. Jr., Jackson, D., Eliot, M. M. and Park, E. A., Prevalence of Rickets in Children Between Two and Fourteen Years of Age: Amer. J. Dis. Child., 66: (July) 1943.

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Rambar, A. C., Hardy, L. M. and Fishbein, W. I.: J. Ped. 23:31-38 (July) 1943

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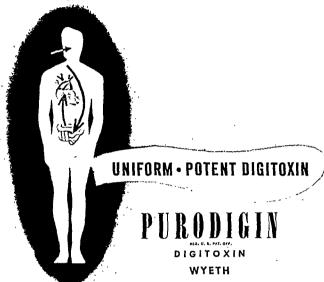


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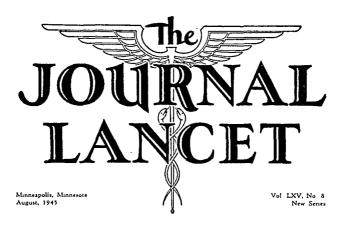
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# The Kenny Concept and Treatment of Infantile Paralysis

Report of Five Year Study of Cases Treated and Supervised by Miss Elizabeth Kenny in America

> John F. Pohl, M.D.† Minneapolis, Minnesota

Australia, after a satisfactory and interest arousing demonstration of her methods to medical men, accepted the invitation of the Minneapolis General hospital to establish a clinic in the hospital for the purpose of demonstrating her concept of the neuromuscular symptomatology of infantile paralysis in the acute stage and of its treatment as devised by her to combat these symptoms. The first group in 1940 consisted of 26 patients.

It was the privilege of the author to observe and study these first patients and all subsequent admissions and to record the progress of the individual cases. These first cases were reported in detail¹ together with a highly complimentary statement commending the advantages of the management of the patients according to the Kenny technique. Almost five years have now elapsed, a sufficiently long period to have reached definite conclusions by constant observation of this work. During this time the Elizabeth Kenny Institute has been established, giving added facilities with a permanent staff, for the

From the Elizabeth Kenny Institute, Minneapolis, Minnesota.

primary purpose of continuing the Kenny treatment of infantile paralysis exactly according to the technique established by Miss Kenny. Two trained Australian technicians, Miss Valerie Harvey and Mr. S. W. Bell, were brought to America to assist Miss Kenny in training a group of American technicians to staff the hospital. A total of 364 acute cases have now been admitted and treated in this clinic. A study of these cases, all supervised by Miss Kenny and treated by her trained staff under constant medical observation, constitutes a means by which an absolutely fair appraisal of Miss Kenny's work can be attained at this time.

The author in his first report <sup>1</sup> was enthusiastic about the work because the patients were so much more comfortable under the Kenny regime and because so many of the serious sequelae of the disease, especially deformities, appeared to have been eliminated. Continued observation of these early cases together with the experience of the succeeding years has served to increase this early enthusiasm and to prove the great metit of the Kenny methods. All patients who have remained for adequate treatment have made entirely satisfactory and remark-

An increase of nearly fifty per cent in the number of polionyclius esses for the first five months of 1945 compared with the corresponding 1846 period brings consideration of this disasses to the fores at the period when it is usually at its height. The corresponding 1846 period brings consideration of this disasses to the fores at the period when it is usually at its height. The middle Atlanue states, where the number rose from 43 to 178 July 1944, Journal Lerp published a polionyclius issue. January 1945, this journal reproduced a report on the status of polionyclius treatment at Minneapolis General Hospital In this issue we continue the discussion of the disease with Dr. Polil's page.

THE JOURNAL-LANCET

ably good progress considering the destructive and disabling nature of this disease. Most gratifying has been the fact that the gross and unsightly deformities which were common in previous years have not materialized in the Kenny treated cases.

The most significant point in Miss Kenny's work is that of a new concept of the neuromuscular symptomatology of the disease. It is impossible to comprehend the purpose or intention of the treatment unless these symptoms are clearly understood. The Kenny concept of infantile paralysis has been adequately described.2 This concept can be contrasted with the traditional or what has been termed the orthodox concept. Orthodoxy has always regarded the disease as essentially an affection of the central nervous system, with flaccid muscle paralysis and other sequelae in the peripheral structures being considered as purely secondary to the central nervous tissue damage. This concept was developed largely by standard laboratory procedures conducted on post mortem material. Miss Kenny's concept is built upon intensive clinical study of cases in the acute stage of the disease and holds that the disease is primarily and most importantly an affection (spasm) of the peripheral structures, principally the muscles and their fascial coverings but including the skin and subcutaneous tissues, and that disturbing functional changes in the central nervous system occur secondarily (alienation, incoordination). This theory does not deny that the central nervous system becomes structurally involved and in fact accepts this as inevitable in some cases, but it does place an entirely new emphasis upon the treatment of the disease.

The general acceptance of Miss Kenny's discovery of muscle spasm as an entity in the disease 3 would seem to place an indigestible issue before the proponents of the orthodox concept of a purely flaccid paralysis both in theory as well as in application of treatment. Since the two views are so widely divergent, in fact directly opposite in conception, it is imperative that this subject be made the basis of study in the scientific laboratories. However, acceptance of new treatment rests not on laboratory confirmation of theories but rather on the demonstrated efficacy when applied to the victim of the disease. From the experience gained in this clinic it has been proven that the results of the Kenny treatment are far superior to those obtained by any previously known method and therefore the results would clearly indicate that the Kenny theories are more reasonable than the orthodox, since the Kenny treatment is based on conditions not previously recognized.

The Kenny treatment is based upon the concept that the disease is principally peripheral in nature and that early intelligent nursing of sick muscles is imperative in preventing permanent irreparable damage to these structures. An essential requirement of the Kenny approach to the restoration of mobility is knowledge of the resting length, composition, construction, elasticity, architecture and contour of the principal individual muscles and a clear understanding of the relationship of the muscle to the nervous system as well as intimate knowledge both of the individual muscle action and the coordination of all muscles related to a part of the body in the formation

of motor patterns. Kenny treatment makes full use of all of these factors in securing the greatest possible recovery to the damaged mechanism. Restoration of cerebral design for locomotion is the principal objective rather than muscle power. It is obvious that statements of recovery of Kenny treated cases based on the above elements cannot possibly form a common ground for comparison of end results of previous methods of treatments which were based on recovery in terms of muscle strength alone. The Kenny methods are not primarily concerned with muscle strength as this factor is of little importance in the restoration of the body to functional activity. It is common to see Kenny treated patients walking without the use of braces and with a rhythmic gait in spite of marked less of muscle power in both lower extremities. Strength of muscles is of little or no importance in dealing with the prevention of deformity. Yet orthodoxy clings to this outmoded attitude toward the disease in spite of the very convincing evidence to the contrary which has been presented by Miss Kenny. The most recent article 4 dealing with the evaluation of different methods of treatment of the disease lists 20 variables by which it is proposed to measure the recovery of the patient from an attack of infantile paralysis. Sixteen of these variables deal with muscle strength and the other four deal with bone atrophy and psychological impact. It is further proposed that a standardized form of muscle test chart be adopted by all clinics treating infantile paralysis. The authors (McIntosh, et al.) of this recent paper overlook the skeletal deformities, braces, and surgical operations which are the real criteria of the crippling effects of the disease and the real measure of the success or failure of treatment.

The orthodox treatment can be summarized because it consists of procedures designed to combat the traditional or orthodox concept of the symptomatology of the disease, that is that the principal finding in the disease is muscle weakness or paralysis. The weakened muscles have been protected by splints and the splints supposedly served a second purpose of preventing deformities by compensating for the weakened muscles. As the disease subsided the emphasis was placed upon exercise in an attempt to strengthen the weak muscles. Deformities were considered to be due to muscle imbalance or strong normal muscles pulling against weakened ones, but since this was an essential feature of the disease, that there should be an irregular distribution of weakened muscles, the deformities were accepted as an inevitable aftermath of the disease. Various modifications of the orthodox treatment have been employed, differing usually according to the degrees of immobilization but all agreed in general principle. The orthodox treatment undoubtedly lessened the amount of crippling from the disease, although even this is seriously questioned by supporters of the orthodox methods," but in the main it failed, as is evident from the great number of deformed and crippled victims of the disease in previous years. This treatment failed because damaging symptoms in the disease were unrecognized and because it was designed for conditions which do not exist in the disease, among them

being the premise that deformities are due to muscle imbalance.

The Kenny concept holds that deformity is the result of the shortening of muscles in spasm when they are untreated, and proceeds directly to prove the correctness of this statement by preventing deformities in spite of weakness or imbalance of muscles. It can be stated without qualification that it is possible to prevent practically all gross deformities if treatment is carried out properly beginning early in the disease. The other symptoms described by Miss Kenny, namely incoordination and alienation, were neither recognized not treated in the orthodox management of the disease but these conditions are detrimental to the patient's recovery unless properly handled. The highly skilled methods of neuromuscular therapy evolved by Miss Kenny have proven to be a rational and effective method of treatment by the real test, the test of time.

As an example of the efficacy of the Kenny concept and management of infantile paralysis, one particular set of muscles can be selected for intimate consideration. The abdominals are particularly adapted to such study since their action is not concerned with the function of any one single joint, and the action of this group of muscles is relatively simple to observe. The abdominal muscles are very noticeably affected by the condition of the opposing spinal muscles which are invariably in spasm in the acute stage of the disease. This relationship between abdominal and spinal muscles was previously unrecognized. Inability or difficulty of the patient in raising himself to sitting from the supine position was a frequent finding and was considered in the past as proof that the abdominal muscles were weakened or paralyzed by the action of the disease upon the spinal cord, Recovery of the strength of the supposedly weakened abdomen was sought by treating the abdominal muscles under the orthodox management of the disease, without discovering that the supposed weakness was largely due to an entirely different condition, that of spasm of the spinal muscles.

Examination of the patients in this Kenny series discloses that only 2 per cent of the patients were able to raise themselves from the supine to a sitting position in the acute stage of the disease and that 98 per cent therefore apparently had weakened abdominal muscles according to the accepted test for strength of these muscles. Of the entire group who have completed treatment only 2.8 per cent retain significant weakness of the abdominal muscles. NONE of the patients wear abdominal supports, including two patients with practically complete abdominal and spinal paralysis as well as complete paralysis of both legs. Both of these two patients sit up unaided, both are able to stand and one stands easily without support. The very high percentage of recoveries of the abdominal muscles in the Kenny treated cases can lead to but one conclusion, that the apparent paralysis is a functional disorder rather than an organic one and that restoration of function to these muscles depends upon recognition of the true cause of apparent loss of function. No known treatment would restore the abdominal muscles to power if the supposed weakness were

actually due to destruction of the co-related neural cells in the spinal cord. This conclusion seems most certainly borne out by previous records of an internationally recognized authority" who stated that 72 per cent of patients in the acute stage had abdominal muscle paralysis in a series of 948 cases. A later examination of patients by this authority disclosed that 44.8 per cent still had evidence of abdominal muscle paralysis. In the series of Kenny treated cases only 2.8 per cent have significant weakness of the abdominal muscles upon completion of treatment although 98 per cent apparently had weakness of these muscles when examined in the acute stage. Alienation as here explained in relation to the abdominal muscles is an important cause of apparent paralysis of muscle, as discovered by Miss Kenny, and the effective means of relieving the condition accounts for the very marked difference in recovery of muscle function in the Kenny treated cases as compared with the orthodox.

The normal distance between the ribs and pelvis in the natural supine or standing position of body alignment constitutes the normal resting length of the abdominal muscles, within which distance these muscles are able to perform their function in the most efficient manner. Any condition which increases this distance and which thus puts the abdominal muscles on stretch, such as lordosis, would interfere with the function of the abdominal muscles and they would appear to be weakened. This is exactly what has happened in the past. Lordosis which we know now to be due to spasm and shortening of the spinal muscles or forward tipping of the pelvis due to shortening and contracture of the anterior thigh structures, has been a frequent condition in infantile paralysis. The effect in such case has been that the abdominal muscles appear weak and were often in the past adjudged as paralyzed whereas they are merely being discouraged or alienated by being pulled beyond their normal resting length. The orthodox treatment was to apply support to the supposedly paralyzed abdominal muscles.

By quite the reverse reasoning the Kenny concept demonstrates that treatment of the shortened spinal muscles in spasm and the restoration of the body to natural alignment and the abdominal muscles to their normal resting length will usually permit function to be restored to abdominal muscles which are not working. This exposes the crux of the controversy of the orthodox versus the Kenny concept of the disease. The orthodox method attempts to aid supposedly weak abdominal muscles by treating the abdominal muscles while the Kenny method successfully attacks the problem of restoration of function to the abdominal muscles by treating the spinal muscles.

Spinal deformities are definitely not caused by weakness of abdominal muscles but quite the reverse is true, that the apparent weakness of the abdominal muscles is caused by spinal deformity. Spinal deformity is caused by shortening of spinal muscles due to lack of treatment of spasm in these muscles in the acute stage of the disease. Scoliosis or lateral curvature is usually caused by shortening of the spinal muscles of one side or the other. Untreated spasm of the right spinal muscles causes a left scoliosis and loss of function (alienation) of the left abdominal muscles, and vice versa for the structures on the opposite side of the body. The truth of this highly important discovery can be proven simply by the fact that NO patient has developed a fixed scoliosis in this entire series of properly treated patients extending over a period of five years. No patient wears an abdominal or spinal support of any kind. This is an amazing and unprecedented experience. Contrast this experience in using the Kenny methods with the following recent statement<sup>5</sup> from another clinic in which the best known previous methods were employed in attempting to prevent scoliosis by treating supposedly weak abdominal muscles in a series of 160 acute cases:

"Any patient who showed any indication of abdominal involvement was fitted with a Hoke type of corset before being allowed to sit up. In spite of this precaution, a definite scoliosis has already developed in twenty-one of these patients, or in about 13 per cent of the total series. In two cases with distinct unilateral involvement, fascial transplants to the abdominal wall have been used in an attempt to splint the weak side and prevent further increase in the deformity, but insufficient time has elapsed to make any statement in regard to the result."

The above quotation demonstrates the misdirection and futility of the orthodox procedures and emphasizes that the orthodox concept of deformity, as being due to muscle imbalance, is obsolete and should be discarded. These results of orthodox treatment again point out the divergence of the orthodox versus the Kenny concept of the disease. Orthodoxy treats the abdominal muscles in an effort to prevent spinal deformity while the Kenny method treats the spinal muscles successfully to prevent the same deformity. Both cannot be right but the indisputably superior results obtained by treatment based on the Kenny principles testify to the soundness of the Kenny concept of the underlying cause of deformities.

The mechanism of the cause of deformities as just described, using the spine and the muscles of the trunk as an example, is applicable to the entire body. Spasm is an active and forceful process affecting muscles and their fascial coverings which may occur in any of the muscles of the body. The affected muscle and its investing fascia are shortened by the spasm. The resulting pull of the shortening muscle causes a disalignment in the skeletal part to which this muscle is attached. If the spasm is not recognized early and properly treated the disalignment becomes a permanent deformity, as the muscle and fascia in spasm passes irrevocably through a period of contraction and finally into a stage of inelastic contracture. Appropriate treatment as employed by the Kenny methods successfully relieves the condition of spasm and thus prevents deformities as the experience in this clinic has so well proven.

The muscle opposed to the one in spasm, wherever it occurs in the body, is usually disturbed by the resulting skeletal disalignment and frequently appears to have lost its power of contracting entirely. This is the condition of alienation, a physiological dissociation between muscle and nervous system, a pseudoparalysis which was previously unrecognized and mistakenly considered to be true paralysis. Returning the skeleton to normal alignment by relieving muscle spasm permits restoration of

function to alienated muscles and for this reason it is reasonable to claim that the Kenny method appreciably improves the recovery of muscle strength of the patient. Alienation has undoubtedly been the cause of much supposed weakness and paralysis in patients treated by the orthodox methods in the past.

Miss Kenny has so decisively proven her thesis that spasm is an important part of the symptomatology of infantile paralysis in the acute stage that it is necessary to re-appraise all conditions in the disease and also the treatment for these conditions which orthodoxy established on the basis of the flaccid muscle concept. This is especially true of the respiratory mechanism, the disturbance of which is so frequently the cause of death in infantile paralysis.

It is now obvious that spasm frequently affects the muscles of respiration and those muscles associated with the respiratory tract such as the posterior neck muscles, the spinal muscles, the shoulder girdle muscles along with the intercostal muscles, the diaphragm, the abdominals, the sternomastoids and other anterior neck muscles, as well as the pharyngeal and laryngeal muscles proper. Spasm may affect any of these muscles and the pain and immobilizing effect of the spasm is frequently the cause of respiratory difficulty. This has not been recognized in the past and those patients presenting embarrassed breathing were invariably thought to be suffering from weakness and were frequently placed in the respirator. Many such cases are still in the respirator years later.

In the type of case where the respiratory mechanism is affected by spasm, failure to treat the affected muscles during the acute stage very much diminishes the possibility of restoring good functional use to the affected respiratory muscles because the untreated spasm plus the respirator combine to permanently damage these tissues to the extent that treatment is useless. Where the respirator is improperly used as in those patients suffering from spasm of the respiratory system, the respirator has a damaging effect. The mechanical effect of the respirator in lifting the rib cage aggravates the condition of spasm of the chest muscles and the affected muscles tend to become hard and inelastic so that the rib cage is like a solid box. It will also be noted that the constant lifting of the rib cage by the respirator causes the lower ribs to become permanently elevated or splayed. This condition has the effect of interfering with the action of the intercostal chest muscles as well as the abdominals.

Treatment by the Kenny procedures of the condition of spasm in the affected respiratory muscles in the acute stage by the use of hot fomentations and the restoration of the confidence of the patient in his own respiratory mechanism by teaching him the rhythm of breathing is a much more rational procedure than placing him in a respirator. Patients in the acute stage of the disease suffering from spasm of the muscles of the respiratory mechanism may die regardless of the treatment given them but they will die in the respirator as well as out of the respirator. Many of those left out who are treated by hot fomentations and other Kenny nursing procedures can be saved.

August, 1945 269

The experience with the respirator in this clinic is arresting. During the past five years there have been 23 deaths from acute poliomyelitis, a fatality rate of 6.3 per cent. Ten patients died outside the respirator and 13 died in the respirator. No patient survived being placed in the respirator. The procedure followed was that the patient was examined for evidence of spasm of the neck, throat, dorsal spine, and chest area and treatment was instituted to relieve spasm present, along with other measures designed to clear the respiratory passage. In any instance where it was obvious that these measures were not aiding the patient he was placed in the respirator at the discretion of the medical staff. Those patients in whom satisfactory oxygenation could not be maintained by any means outside the respirator were invariably placed in the respirator. All of these patients improved for a short time when placed in the respirator but all invariably died. The Kenny treated patients who had respiratory difficulties and who survived all have normal function of the respiratory system.

There are some patients who do have a true paralytic affliction of the throat and respiratory muscles, presumably due to involvement of the related portion of the spinal cord. These patients are observed to be very limp and to tend to become comatose without great effort on their part to secure air. Frequent swallowing motions appear to be an attempt to imbibe air. The apathetic and semi-comatose patient of this type may be benefited and life prolonged or even saved by the use of the respirator but this type of condition is rare.

Physiotherapy has been defined as the science of treatment by the use of the physical forces of nature. In the very acute stage of infantile paralysis the Kenny method employs the use of heat and moisture as part of the superb nursing care of the patient and for the purpose of securing relaxation in the affected parts. The therapy employed in the Kenny technique to restore function to the damaged motor system can hardly qualify as physical therapy but rather as an advanced form of physical medicine which might be termed neuromuscular therapy. The techniques used require not only an expert knowledge of the action of individual muscles but also employ specialized means of restoring normal reflexes and patterns of motion to the central nervous system. Judging from the results obtained by the Kenny system in this clinic it can be stated that the methods are highly effective.

Attempts in other clinics to modify the Kenny methods and to develop a so-called "modern" treatment are apparently due to an incomplete understanding of the Kenny principles. These modifications, consisting usually of the addition to the Kenny methods of night splints to rest the muscles, or of day splints to assist standing, or supports to the trunk, or pool treatments, appear to be simply reversions to the old orthodox procedures. This is irrational because the orthodox methods were founded upon paralysis as the primary lesion of the disease and were thus designed for conditions which were quite the reverse of those for which the Kenny methods are designed. The combination cannot be an efficient form of treatment.

The Kenny method of re-education is based upon the fact that man is essentially master of his muscles and that he can adopt bad habits of muscle activity as well as good. Restoring the rhythmic relationship of the various movable units of the body to each other in forming the normal motor patterns of the cerebrum is highly important. Splints particularly tend to disrupt this mechanism because they induce in the mind of the patient an attitude of immobility. Pool treatment, including the small tank or Hubbard tub, should have no place in the therapy of infantile paralysis. The impracticability and impossibility of its application is evident. True re-education under water is impossible because it cannot be exact when the vision of the technician is obscured. Incoordination will not be observed and coordination will not be restored. The patient will freely substitute strong muscles for weaker ones with the result that improper motor patterns will be more firmly established and incoordination be made permanent. Immersion in water alters the normal gravitational forces acting upon the body because of the buoyant effect of the water. This is particularly important in connection with the trunk structures. The patient fails to be impressed by the necessity of acquiring good stabilizing quality in the trunk muscles and in fact does not appreciate the mechanism of stabilizing the body upright. He is, therefore, placed at great disadvantage when he is faced with the problem of coping with the direct forces of gravity as they affect his posture on dry land.

Considerable interest has recently been aroused in the use of drugs to help combat the muscle spasm of infantile paralysis.<sup>71,8,0</sup> This is commendable although the evidence so far presented is conflicting and highly questionable as to the efficacy of the drugs used. The regretable result of this work is that it has led to the naive belief that the simple release of muscle spasm automatically leads the patient to effective coordinated restoration of his motor system. This is unfortunately not the case. Regardless of the method of relieving spasm the patient must be retrained by someone who has an expert knowledge and skill in guiding the disturbed nervous system back to its proper state of function.

Infantile paralysis produces effects too profound to be corrected to any satisfactory degree by those with in-sufficient skill and training. The old physiotherapy dictum of heat, massage and exercise cannot be applied to this disease. Rather must the technician be far better equipped than in the past if the victims of the disease are to be given a fair chance for recovery. Experience has shown that the normally intelligent nurse requires a period of two years of training and experience to be confident in handling the problems of infantile paralysis. This has been amply demonstrated in this clinic by the increasingly better results obtained as the technician becomes more familiar with the multiplicity of details which the disease presents in different cases. This length of training period is partly necessary because of the seasonal incidence of the disease of infantile paralysis. The prospective technician becomes acquainted with the disease during her experience with the first epidemic but she must wait a year before she can again apply her first

knowledge to the handling of the acute case. A technician without nursing experience is at a distinct disadvantage in handling this disease as the treatment must be instituted in the very earliest stages when the patient is ill and in need of expert nursing care. The entire future course and eventual outcome of the patient is in most instances determined by the management of the case in the first several days of the illness. Only the most highly skilled and trained technician is in a position to give the patient the real benefit of this most advanced method of treatment.

#### RESULTS OF THE KENNY TREATMENT AT THE ELIZABETH KENNY INSTITUTE MINNEAPOLIS, MINNESOTA 1940-1944 (inclusive)

During the years 1940 through 1944 a total of 364 patients suffering from the disease infantile paralysis in the acute stage have been admitted and treated in the Elizabeth Kenny clinic, of which 341 survive and form the material upon which this evaluation of the Kenny concept and treatment is based. These patients have all been discharged from the hospital and may be considered to have completed treatment. All of the patients were originally admitted to the contagious wards of the Minneapolis General hospital and were diagnosed by the attending medical staff of that hospital before being transferred to the Elizabeth Kenny clinic for treatment. All of the patients were treated because all showed evidence of tissue spasm, now recognized as the most important condition affecting the body in the acute stage of the disease, and the most damaging if disregarded. The patients also showed evidence of perversion in the ability to contract muscles. This is frequently caused by pain and spasm in the muscles but 68 per cent of the patients in the acute stage were considered to have definite evidence of interruption of motor innervation either because of alienation or through damage of the central nervous system. Upon completion of treatment 16 per cent of the patients have extensive residual paralysis of one or more extremities but 84 per cent may be considered to have good recovery from the standpoint of muscle strength and the ability to move the limbs.

Relief of the condition of alienation through proper treatment gives a true picture of the result of actual motor denervation. The disease from the standpoint of paralysis seems to be more regional in character than formerly pictured, with weakness or paralysis appearing fairly generally in the part affected such as in the lower leg, the shoulder, or an entire extremity. The instances of isolated paralysis of a single muscle are much fewer than observed in former years when orthodox treatment was used. This condition was apparently a pseudoparalysis or an alienation rather than a true paralysis. The muscles in a region where evidence of true motor denervation exists are apt to be uniformly weakened or paralyzed although in some cases one or more muscles of that region may retain considerable strength.

In reviewing the general experience with the Kenny treatment year by year it should be stated that the cases in this series (1940 through 1944) were not mild ones

but were of average severity in comparison with previous experience in the same hospital.

In judging the final results of a disease so variable in its attack as infantile paralysis and the effectiveness of any form of treatment the only practical measurement is the degree of restoration of the patient to general useful functional activity as an individual with the prospect of self-support and independence. It should be perfectly obvious to anyone acquainted with the disease that the extent of retention or loss of muscle strength is not a practical guide to be used as a means of judging the effectiveness of methods of treatment. There is no treatment that will cure paralysis or resurrect dead nerve cells killed by the disease. A patient may be a success from the standpoint of retaining good muscle power but the same patient definitely represents a failure of treatment if he suffers permanent crippling deformities in spite of his good muscle strength, as was too frequently the case under the orthodox management of the disease. On this basis the Kenny treatment proves to be remarkably successful as 95.5 per cent of the patients in this series appear to have an assured future existence, free of cumbersome braces, grotesque deformities and awkward methods of locomotion. This does not mean that these patients are cured or all free of paralysis but rather that they have the potential ability to carry on a useful and independent existence. The other 4.5 per cent (15 patients) are by no means helpless or even necessarily crippled but are considered as having made an unsatisfactory recovery from the standpoint of having retained muscle weakness of such extent as to prevent them from being fully independent. None have gross deformities. All of the fifteen are able to walk although those with severe involvement of the lower extremities require some form of artificial assistance such as crutches, canes or braces. There are nine adults in this group and six children. The adults consist of one farmer, one draftsman, one mechanic, two clerical workers, two housewives, and two college students. Five of the adults wear braces. All of the nine adults are back at their regular work and may be considered as making their own way except one housewife and one college student; these two patients both with fairly complete paralysis of the trunk and lower extremities still need considerable assistance although both walk and are still improving. The six children who have made unsatisfactory recoveries from the standpoint of having retained considerable general muscle weakness are all able to walk without assistance. Three wear leg braces. All of the six attend school regularly.

Braces are worn by eight patients, or 2.3 per cent of the entire group of 341. Some of the patients who do not require braces do use other means of assistance in walking. Crutches only are used by 3.4 per cent of the patients and one cane is used by 2.8 per cent of the patients. For the most part the crutches are employed as a means of continuing to teach the patients good motor habits rather than as a means of support. Crutches are later displaced by a single cane in most patients or are discarded entirely.

The gross and humiliating deformities such as spinal curvature (scoliosis), torticollis, lordosis, pelvic obliquity,

joint dislocation, knock knee, valgus foot, varus foot, equinus foot, cavus foot, calcaneal heel, and joint contractures of previous years have been eliminated in all of the cases. Only three children of the total series of Kenny treated cases have shortening of a limb, the greatest amount being one-half inch, an amount which

Tissue atrophy is present in some patients but not nearly to the extent previously encountered. The annoying trophic and circulatory disturbances of the skin, coldness, excessive perspiration, purplish discoloration, ulceration, callous formation, and chillblain so frequently encountered in the past have been eliminated.

None of the patients has required surgery to date and no indication has arisen in which surgery might materially improve the condition of any of the patients.

The hospitalization experience is of interest. In repard to care the patients fall roughly into two categories, those with little or no residual paralysis at the end of treatment, and those with serious residual paralysis of one extremity or more. The former group, comprising 72 per cent of the patients, were hospitalized for an average stay of two months. The latter group, all of which had fairly extensive paralysis, were hospitalized for an average stay of 11 months. Only two patients of the entire group who have had Kenny treatment have required re-hospitalization and these only for the very limited time of three months. None of the 341 patients, including the severely involved, have entered orthopedic hospitals, rest homes or institutions for the care of the crippled and chronically disabled.

Infantile paralysis has been the great crippler of children. The orthopedic hospitals and schools for crippled children have largely been devoted to caring for the victims of this disease. Each child represents sorrow and tragedy for a family. Study of a crippled children's school in a community where infantile paralysis is commonly present and where the management of the disease throughout its course is in the hands of a relatively few doctors will give an overall picture of the infantile paralysis situation. Michael Dowling School for Crippled Children in Minneapolis permits a ready means of such review for study of the crippling effects of the disease. This is a public school operated by the city of Minneapolis for the care and education of all elementary age school children in Minneapolis who are afflicted with crippling diseases or unable to attend regular school because of physical disability. Children are referred to the school by private physicians or others who are responsible for the medical management of the individual patient. The same orthopedist has examined the patients on admission and supervised the care of the pupils during their attendance at this school since the year 1937. The general picture regarding infantile paralysis from 1937 through 1939 at this school can be directly compared with the general picture since 1940 which was the year Miss Kenny began her work in Minneapolis. This is summarized in the table.

Treatment Comparison of Children 14 Years of Age or Under Afflicted with Infantile Paralysis and Elizable to Attend Michael Dowling School for Crippled Children, Minneapolis, Minneapolis,

	Orthodox Treatment 1937 thru 1939	Kenny Treatment 1940 thru 1944
Number of Minneapolis children, 14 yrs. of age or under, af- flicted with the disease	178	146
Number of this group of Minne- apolis children finally enrolled at Dowling School as a result of having had infantile paraly- sis in the indicated years	37 (325% of the chil dren afflicted in Minneapolis)	0 J.
Number of this group of Minne- apolis children with fixed gross deformities present at the time of entrance to Dowling School	45 (80% of those admitted)	0
Number of this group of Minne- apolis children who had to wear braces at the time of entrance to Dowling School	15 (26% of those admitted)	o
Number of this group of Minne- apolis children who have had surgical operations	12 (21% of those admitted)	0

The above figures from a crippled children's school graphically indicate the serious nature of the disease of infantile paralysis. The figures show that under the best known previous (1937 through 1939) methods of treatment in a large city that 32 per cent of the children afflicted had to have special provisions for their care and education; 80 per cent of those entering the school developed permanent deformities, 25 per cent of them needed braces and 21 per cent required surgical opera-

In very marked contrast, as is evident from the tabulated data, in the years 1940 through 1944 during which time the Minneapolis victims of the disease received Kenny treatment, the 146 patients of elementary school age fared quite differently by comparison. It has not been necessary to admit any of these Kenny treated patients to the crippled children's school. None have gross deformities and none have had operations. The Kenny methods should need no greater argument in support of their widespread adoption than the proven elimination of the major part of the crippling after effects of the disease of infantile paralysis.

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## Observations on Tropical Disease\*

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NE science that is tremendously advanced by war is that of medicine. There is advancement not only in the management and control of infections, treatment of wounds, and in the field of plastic surgery, but also in our knowledge of diseases that were as foreign to us as our geography seems to have been. This war is making specialists in fields that many never expected to encounter. One does not become an authority in tropical medicine by one short tour in the tropics, but one does learn about diseases that are vague memories from the medical textbook. Each medical officer returning from the combat areas will have a different experience to tell when he returns, and each will have something more to contribute to the future of medicine. Our experiences seemed meagre and routine at the time, but in retrospect they become more and more interesting.

It has been emphasized, and should be emphasized again and again that the world is changing rapidly. Most important to the medical world is the fact that there is no point on the globe that is more than sixty hours away by air. This means that the possibility of seeing unusual and remote diseases here has increased greatly, and after the war when free intercommunication is established, there is the possibility that it may not be an uncommon experience to see these diseases throughout this country. This must be kept in mind, and it will add to the ever increasing list of diseases that one must consider in a differential diagnosis. This possibility may have reached some already, as I am sure that the study of malaria has become more popular since the return of a few of the men from the service to civilian life.

The recognition of the tropical diseases becomes easier as one becomes more familiar with the conditions, and it is important that those of us here in the United States be aware of the more important signs and symptoms should such cases present themselves to us. It is difficult to evaluate the clinical picture as it is presented in the standard textbooks of tropical disease, and it is for this reason that the outstanding clinical features of the diseases which were observed will be emphasized.

In spite of all that has been written about the difficulties in surviving on the South Sea Islands, one cannot realize just how many problems are encountered until one is face to face with them. Such simple things as eating, washing, and sleeping become major problems, and one of the first of the major problems that has to be met is that of feeding the men under sanitary conditions in a climate that invites food spoilage both day and night. The average temperature of the island where we landed is 80 degrees, and the yearly rainfall 190 inches. One would expect that the white man would soon become well tanned and look the picture of health, but instead he becomes pale, looks a little feeble, and

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fatigues easily. The native, knowing how to live in the tropics, works but very little, enjoys his leisure, and particularly enjoys the tropical moon and the glorious tropical evenings. Wartime living does not permit such luxuries, and combat training, the construction of camps, transportation of food, ammunition, etc., go on twenty-four hours a day.

Our life of leisure ended when the convoy dropped anchor in the harbor, for it was then the unloading of the ships, the establishment of camp sites, and the feeding of the men began. We were fortunate, in that we were not the first to be assigned to the island, and the Marines who preceded us there had learned many of the necessary procedures for the maintenance of life. The housing problem did not bother the Marines. They doubled up where they could, set up tents if available, and many slept in the open for the first few nights without complaint though the rain was heavy. From the medical standpoint, the first major problem was that of feeding the men.

Diarrhea and dysentery are the main fears of the medical officer when he first lands on such a tropical island. We were all poorly informed, and perhaps this was fortunate, for we learned through experience and we learned fast. The day after landing, we were confronted with a number of cases of severe diarrhea associated with intense abdominal cramps. It looked like the beginning of a real epidemic of some sort; but our fears were soon alleviated when one of the corpsmen, experienced in the tropics asked the men if they had sampled the coconuts. Invariably the answer was in the affirmative, and our first lesson was that green coconut milk was one of the foremost causes of diarrhea. The word was passed that the men should refrain from eating coconuts, and that was the end of the first "epidemic." About two days later a second epidemic of "dysentery" appeared, and this was traced to the washing of the mess gear in the mountain streams. The cleaning of mess gear in the tropics has to be very carefully supervised, and with the available mess halls serving twice the number of men that they were set up for, the cleaning of the gear soon got out of control. The mess gear is cleaned before and after eating, and this has to be done in improvised sterilizing tubs made from half of an oil barrel. A fire is kept under the half oil barrel at all times, and the water is near to the boiling point. Because the line became so long and there was work to be done, the inexperienced went to the streams and washed their mess gear there. All streams must be considered contaminated, for in spite of war, military rule, and education, the native population could not be made to change their ways, and the mountain streams are natural privies in the minds of the natives and will always remain so. No specific cause for the diarrhea was found, but as soon as the men were

required to wash their mess gear in boiling water, the second epidemic was under control.

In our particular location, we were not confronted with the severe dysentery that one encounters in the Southwest Pacific, but we did have a few cases, and the differential diagnosis of these is worthy of consideration. Having ruled out the above-mentioned causes for "dysentery," namely green coconut milk and unclean mess gear, then one has to consider the various types of bacillary dysentery, amebic dysentery, the typhoid fevers, and the diarrheas caused by the various forms of intestinal parasites. As one might guess, the means for laboratory diagnosis on such an island base are often not available, although it is surprising how good the laboratory facilities can be. For the most part, however, it became necessary to make the diagnosis on epidemiological and clinical features, and by the use of specific drugs. During a nine month period, one case of paratyphoid fever, and one case of amebic dysentery were encountered, and although these diseases had to be kept in mind, it was logical to consider other causes as more likely.

Bacillary dysentery is by far more common than amebic dysentery, and bacillary dysentery is usually epidemic rather than sporadic as is amebic dysentery. If food poisoning caused by the Salmonella group can be ruled out, usually by the absence of the relation to the ingestion of infected food, then the bacillary type of infection should be considered as the causative agent. If one is still in doubt, a therapeutic test by emetine should be used. If the dirarhea is amebic in nature there will be a striking improvement in the course of twenty-four to forty-eight hours. If no improvement, then it may be assumed that the diarrhea is bacillary in origin, and the use of sulfaguanadine or other of the sulfonamides may be started.

Before dismissing the diarrheas, three other causes must be mentioned. The first and perhaps the most violent and prostrating is the diarrhea caused by a very simple combination of lemon powder in solution placed in the outside container of the vacuum food carriers used to carry food to the men in the field. It is a very simple source to track down once one is aware of the disastrous effects of this combination, but it has caused many a medical officer many uneasy hours until he became aware of this unusual epidemiological factor.

Two rather simple infestations became troublesome to us as there was a lack of effective drugs for their treatment. The first of these infestations that was encountered was that of strongyloidiasis. Men were reporting in with persistent diarrhea, and rather severe abdominal pain. Many of these were thought at first to have appendicitis, and yet only one of these patients had his appendix removed unnecessarily. The diagnosis is not difficult and the ova can be easily recognized even by the inexperienced by reference to the drawings in the standard textbooks. The treatment, too, is simple if one has the available medicinal gentian violet in enteric coated capsules. One grain of gentian violet is given three times daily until 50 grains have been given. Lacking the desired enteric coated gentian violet, our ingenuity got the better of us, and we tried laboratory gentian violet via the stomach tube only to find that it was extremely nauseating even in very small doses, and gentian violet does stain beautifully, completely, and permanently. The second infestation was that of the ascaris, lumbricoides. It occurs throughout the world, but is particularly prevalent in the tropics where the warm moist climate favors the embryonation of the ova in polluted soil. The parasite is 24 to 40 cm. in length and requires no intermediate host. It is well to review the life cycle of this parasite briefly. Following embryonation of the ova in the soil, the larvae are ingested in polluted water, and grow in the small intestine. They then penetrate the small intestine, reach the lymphatic system, and then are carried through the right heart to the lungs. Here, after a sojourn of several days, they usually break through the pulmonary capillaries into the air sacs and are carried up the bronchioles, bronchi, and trachea to the epiglottis and then are swallowed and pass down into the small intestine where they develop into adult male and female worms. This entire process takes eight to ten weeks, and the adult parasite will live in the human host for about one year. They produce little in the way of symptoms, but they may cause ulceration of the intestine, and may penetrate into the appendix, bile ducts, pancreatic ducts, nose sinuses, middle ear and larynx. If they grow in large enough clusters, they may produce intestinal obstruction. Treatment consists of either the use of hexylresorcinal capsules, 1.0 Gm. given in the morning followed in two hours by a saline purge, or the use of oil of chenopodium. Oil of chenopodium is a dangerous drug, but under the stress of the emergency, it was used freely, but always with a saline purge, and no fatal results were encountered in many administrations.

The medical officers of the various units on the island made a sincere effort to maintain interest in medicine as well as military affairs and Sunday afternoon meetings were held at the various medical activities. One of the first of these was devoted to the subject of filariasis, which to most of us was another textbook memory, and was a curiosity because it was believed to be limited only to the native population. As may be recalled, filariasis is a disease caused by certain parasitic nematodes, the adults of which live in the circulatory or lymphatic systems, the connective tissues, or serous cavities, while certain larval forms, often termed "microfilariae," commonly invade the circulating blood or lymph spaces. The infestation results in a condition which is recognized as elephantiasis and it affects the extremities and the lymphatics of the spermatic cord resulting in elephantiasis of the scrotum.1 The filariae possess an important biologic distinction from all of the other nematodes in that in all species whose development is known an intermediate host is required for the larval stage and one individual with the disease cannot infect another.

About the only thing we recalled about filariasis from medical school days was that it occurred in Charleston, South Carolina. We were soon to learn much more about it, for although we were of the opinion that the white man could not get filariasis, the natives, who are very friendly and observant people kept insisting that

some of our Marine patients had Mumu. As we saw more and more patients with a peculiar but definite clinical picture, it became more and more evident that the natives were right, and that they had recognized the early stages of the disease where we had failed. The microfilariae are carried in the Pacific islands by a mosquito, the pseudoscutellaris and the scutellaris, which bite both day and night. At the site of the mosquito bite there is a small area of inflammation which is followed by a lymphangitis which differs from other types of lymphangitis in that it extends toward the periphery, and is therefore termed a retrograde lymphangitis. This usually subsides rapidly under supportive measures of bed rest and local applications of heat, and shows no tendency to recur. A number of men who first reported in complained of pain in the testicles with extension up along the spermatic cord. After a period of a week to ten days in bed, the pain and tenderness of the cord disappeared, and the men were returned to duty. Many of these men found it impossible to do any hard work, and consequently were sent back into the field hospital for further treatment. When we became aware of the fact that there was an enlargement of the spermatic cord, or rather of the tissues about the cord, it was found that these men had a thickening of the cord of about one centimeter or larger. This enlargment was extremely tender and painful, and prevented the men from climbing, enduring long marches, and from doing any useful amount of work. As more and more became thus affected, the greater grew the necessity to establish the diagnosis accurately. A few of the men presented enlarged lymph nodes in the region of the breast, and many showed enlarged epitrochlear lymph nodes. As the blood stream showed no microfilariae in any of the cases, the removal of the enlarged lymph nodes in a few cases for study was believed justified. This was done, and the adult filarial worm was found in 100 per cent of the cases observed.

Elephantiasis does not result from one exposure to the disease, nor, in fact, from several exposures, but rather from repeated exposures over a number of years. There is no known drug that will harm the parasite without injuring the host, and the treatment of the disease in the native population consists only of the surgical removal of the redundant scrotum when this becomes necessary for the comfort of the individual and of incision and drainage of filarial abscesses should these develop. In the native, once elephantiasis has set in, there seems to be a certain unexplained periodicity to the disease, for there are recurring bouts of chills and fever. During such periods, which vary in occurrence from a few weeks to several months, the involved extremity becomes more edematous, tense, and painful. When the period of fever is over, the extremity shrinks, the pain disappears, and the patient returns to a normal life. The elephantiasis, however, remains a little larger than prior to the

In regard to the treatment of the disease in its early stages, as we saw it in our personnel, all measures were directed toward symptomatic relief. The man was put to bed, the scrotum supported, and he was given sedatives as indicated. All of these cases were relieved of symptoms after a week or ten days in bed, and they were returned to duty. If they had a recurrence of symptoms they were readmitted and again treated by bed rest. If there was a further recurrence, they were then considered for transfer to the United States, for it is known that once these patients are in temperate climates there is a disappearance of symptoms. Those who were sent back to the States with definite enlargement of the spermatic cord arrived here showing no enlargement whatsoever.

It is anticipated that all of the men who contracted the disease will remain free of signs and symptoms as long as they remain in temperate regions. It is possible, however, from the evidence of previous observations on patients brought to New York from Haiti a few years ago, that some of the patients may experience some discomfort in the testicles during the warm summer months even in the temperate zones. Should such patients present themselves, the examination should be made with special reference to the presence of enlarged epitrochlear lymph nodes, and to the characteristic thickening of the spermatic cord. Both of these findings are extremely characteristic of the disease and are almost universally present. The epitrochlear nodes are discrete, freely movable, and run along the course of the brachial artery just above the elbow joint. The thickening of the cord is of a rubbery consistency, and, at first, will remind one of a small hernia or hydrocele, but it runs from the testicle through the external ring as far as one can reach with the examining finger. Enlargement of the testicle may be associated with the enlargement of the spermatic cord. If such cases are encountered, bed rest with support to the scrotum, and the use of proper sedation is recommended. In spite of a widespread misconception among the Marines, sterility has not been observed to result from this disease.

Our particular area was free of malaria and dengue fever which are mosquito-borne infections endemic in other parts of the South Pacific. A few cases of malaria were seen in those men who had been evacuated from other parts of the Pacific, and although the disease is of growing interest to all of us back here in the United States, it is necessary for military reasons that the information available to the service be withheld for the present. It is permitted, however, to alleviate some fears by mentioning that malaria is considered much as a bad cold by many medical officers in the South Pacific, and that the present-day methods of treatment are effective. For the present, it will be necessary to rely on the good standard treatments such as those set forth in Stitt's Diagnosis and Treatment of Tropical Diseases.

Dengue fever is a disease caused by a filterable virus, and is transmitted by the mosquito of the genus Aëdes. It is characterized by an initial three or four day febrile paroxysm of a very sudden onset, a remission which comes on about the fourth day, and a terminal rise in temperature for two or three days. There is a severe postorbital soreness which is extremely characteristic of the disease as is the severe backache and the pains about th muscular attachments of the joints. The pain in the

back is so severe that it is sometimes known as "breakbone" fever. Although the disease is rarely fatal, it is of interest in that there is a good possibility that the disease may some time spread to this country. In spite of the most careful supervision of the aircraft leaving the tropics, it is possible for the infected mosquito to be brought here in this manner. If it should appear, its spread can only be expected during the warm summer months when the conditions are right for the development of the mosquito, Aëdes ægypti.

As was stated earlier, one cannot expect to become an authority on tropical medicine after one short stay in a tropical area, but many of us feel expert when it comes to the treatment of fungus infections. As one might expect with the heavy rainfall, the dense vegetation, the high humidity, and the intense heat, conditions are ideal for fungus infections of all varieties. Practically all of us had fungus infections of one form or another. On the hands and feet, the fungus appeared much like the usual variety of athlete's foot. It had a similar appearance on the body, and in the auditory canals. Ringwormlike lesions occurred all over the body, and like the fungus infections elsewhere it failed to respond to the usual methods of treatment. It was not unusual to see the infection spread rapidly while the patient was under treatment as a bed patient. Good laboratory studies were out of the question, but pyogenic infection seemed to complicate the picture in most of the severe cases. Out of some rather crude experimentation a combination of sulfathiazole powder and an aqueous solution of mercurochrome evolved, and this seemed to be effective where other drugs had failed. For convenience, 5 grams of sulfathiazole powder was added to each 100 cc. of a 2 per cent mercurochrome solution, and this suspension was painted on the lesions without protective dressings. This is by no means a panacea, but should be considered when other solutions and ointments fail.

The suspension of sulfathiazole in mercurochrome was later used in the treatment of the so-called tropical or coral ulcer. Many ulcerations fall into this classification in the tropics, but the clinical course of a typical tropical ulcer is quite uniform. There is a history of a slight scratch or abrasion, which is followed by prompt healing. This is followed in a few days by swelling beneath the original site of injury, and in a few days the area breaks down into an open sore. It may spread rapidly at first and then remain as an indolent open ulcer that fails to heal under any treatment. Various organisms have been credited as the cause of such lesions, and spirochete with fusiform

bacilli, streptococci, staphylococci, and many other organisms have been recovered. Several typical coral ulcers were treated with mercurochrome and sulfathiazole with excellent results. None of them failed to heal. Two of these cases had been under treatment for over eight months before they were treated in the above manner. No claims are made for this suspension, but it is offered as a suggestion for further trial.

275

As a matter of final interest, mention should be made of the disease common in the tropics, namely yaws. It was almost universal among the native population, but as far as is known only one of the white population contracted the disease during our stay. It is caused by the spirochete, treponema pertenue, which cannot be distinguished from the spirochete of syphilis. Yaws 15 not a venereal disease but is transmitted either by direct contact with the open sore of yaws, by contamination from open sores, or by flies that have been in contact with the open sores of yaws. It must be introduced into the body through the open skin, but as the native children run about the island with no clothes on and are in constant contact with the coral and sharp stone, open cuts are frequent. There is an excellent opportunity for the spread of the disease in children, and adults as well. It runs a course very similar to syphilis, the initial granulomatous lesion of yaws (mother yaws), however, usually appearing on the extremities. The secondary eruption usually resembles large warts, but may be smaller papules or scaly ringworm-like lesions. In children, these lesions appear on the feet, and give rise to a peculiar gait, and the children are known to have "crab yaws." In later life, gummatous lesions very similar to syphilis may appear in the untreated cases. Clinical cures are effected by a few treatments with one of the arsphenamine compounds.

In conclusion it must be said that however complicated the tropical diseases may seem, if the possibility of their presence be kept in mind many of them will be easily recognized. It is disturbing to be faced with a clinical picture that is unfamiliar, but fortunately most of the men returning from the tropics are quite well informed of the diseases that are endemic in the areas they have visited. They will probably be the first to help us in the recognition of their disease.

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The Army's malaria fight at present in India Burma is being carried on under the direction of Colonel Karl Rosenius Lundeberg, chief of the preventive medicine section in the theater surgeon's office. A native of Kenyon, Minnesota, Col. Lundeberg was recently awarded the Legion of Merit for his work in preventive medicine in the surgeon general's office. Highly trained malarialogists have worked with the troops and ahead of the troops, in combat, on the Stilwell Road, through the jungles, in and around all types of installations. Theirs has been a major contribution to ultimate total victory. Without them, the Stilwell Road might never have been built and the battle for northern Burma might never have been won.

## Transactions of the North Dakota State Medical Association House of Delegates

Valley City, North Dakota May 20, 1945

OFFICERS, 1944-1945	STUTSMAN COUNTY
President F. L. WICKS, Valley City	W. W. WOOD Jamestown
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First Vice-President A. E. SPEAR, Dickinson	TRI-COUNTY
Second Vice-President P. G. ARZT, Jamestown	M. J. MOORE New Rockford
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Delegate to A.M.A., 1945	GUNDER C. CHRISTIANSON Sharon
Alternate Delegate to A.M.A., 1945	A. A. KJELLAND, Alternate Hatton
W. A. WRIGHT, Williston	
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Fifth District C. J. MEREDITH, Valley City	MAGNUS RUUD Grand Forks
Ninth District A. E. WESTERVELT, Bowdon	C. R. TOMPKINS Grafton
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Seventh District JOSEPH SORKNESS, Jamestown	F. L. WICKS Valley City
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Tenth District	ROLFE TAINTER Fargo O. C. MAERCKLEIN Mott
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Third District	JESSE W. BOWEN Dickinson
Sixth District	IRA S. ABPLANALP Williston
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BERNARD A. MAZUR, Alternate Fargo	L. W. LARSON, ex-officio Bismarck
W. E. G. LANCASTER, Alternate Fargo	F. L. WICKS, ex-officio Valley City
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G. M. WILLIAMSON, Alternate Grand Forks	H. B. HUNTLEY Kindred
•	N. W. FAWCETT Devils Lake
W. A. WRIGHT Williston	L. H. LANDRY Walhalla E. M. WATSON Fargo
I. S. ABPLANALP, Alternate Williston	A. R. SORENSON Minot
NORTHWEST	A. S. CHERNAUSEK Dickinson
A. R. SORENSON Minot	T. Q. BENSON Grand Forks
D. J. HALLIDAY Kenmare R. T. O'NEILL, Alternate Minot	KENNETH MALVEY Bottineau E. J. BEITHON Hankinson
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C. C. SMITH Mandan	F O WOODWARD Jamestown
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W. H. LONG Fargo	N. O. RAMSTAD Bismarck
A. D. McCANNEL Minot	
R. H. WALDSCHMIDT Bismarck	REFERENCE COMMITTEES—House of Delegates
R. W. R. RODGERS Dickinson	To consider the Reports of the President, Secretary
COMMITTEE ON MATERNAL AND CHILD WELFARE	and Special Committees:
	A R. SORENSON, Chairman Minot
J. H. MOORE, Chairman Grand Forks	O T BENICON CHAIRMAN
T. L. DEPUY Jamestown	O. T. BENSON Glen Ullin GUNDER C. CHRISTIANSON Sharon
P. W. FREISE Bismarck	
J. D. GRAHAM Devils Lake	To consider the Reports of the Council, Councillors
J. F. HANNA Fargo	and Delegate to the A.M.A.:
P. H. WOUTAT Grand Forks	G. WILSON HUNTER, Chairman Fargo G. W. TOOMEY Devils Lake
E. M. RANSOM Minot	G. W. TOOMEY Devils Lake
M. D. WESTLEY Cooperstown	C. V. BATEMAN Wahpeton
LAWRENCE PRAY Fargo	To consider the Reports of Standing Committees, except the
COMMITTEE ON CRIPPLED CHILDREN	Report of the Committee on Medical Economics:
A. R. SORENSON, Chairman Minot	R. H. WALDSCHMIDT, Chairman Bismarck
HARRY J. FORTINFargo	O. A. SEDLAK Fargo
J. C. SWANSONFargo	M. J. MOORE New Rockford
R. H WALDSCHMIDT Bismarck	To consider the Report of the Committee on
W. W. WOOD Jamestown	Medical Economics:
COMMITTEE ON VENEREAL DISEASE	P. H WOUTAT, Chairman Grand Forks
JOSEPH SORKNESS, Chairman Jamestown	I H FIFI DF Farge
H. D. BENWELL Grand Forks	D. J. HALLIDAY Kenmare A. P. NACHTWEY Dickinson
NORVEL BRINK Bismarck	A. P. NACHTWEY Dickinson
D. J. HALLIDAY Kenmare	W, W, WOOD Jamestown
T. L. DEPUY Jamestown	COMMITTEE ON RESOLUTIONS
G. F. CAMPANA Bismarck	V. E. FERGUSSON, Chairman Edgeley
C. J. MEREDITH Valley City	C C. SMITH Mandan
G. W. TOOMEY Devils Lake	W. A. WRIGHT Williston
COMMITTEE ON PNEUMONIA	COMMITTEE ON CREDENTIALS
O. W. JOHNSON, Chairman	A. W. MACDONALD, Chairman Valley City
L. H. FREDRICKS Bismarck	W. A. LIEBELER Grand Forks

#### Proceedings of the House of Delegates of the NORTH DAKOTA STATE MEDICAL ASSOCIATION

First Session, Sunday, May 20, 1945

First Session, Sunday, May 20, 1945
The House of Delegates convened in the City Auditorium, Valley City, North Dakota. It was called to order at 9:45 A. M., by the speaker, Dr. John H. Moore. Dr. W. A. Liebeler, acting chairman of the committee on credentials, announced that thirteen elected delegates had presented their credentials, and were qualified. President Wicks appointed Dr. James F. Hanna, Fargo, to serve in the absence of Dr. J. H. Fjelde, delegate from Cas country, and Dr. W. H. Bodenstab, Bismarck, to serve in the absence of Dr. C. C. Smith, delegate

from the Sixth district The secretary called the roll. Fifteen delegates responded, and the speaker declared a quorum present Delegates present were: Doctors G. Wilson Hunter, Fargo; O. A. Scellak, Fargo; James F. Hanna, Fargo; P. H. Woutat, Grand Forks; W. A. Luebeler, Grand Forks; W. A. Wright, Williston; A. R. Sorenson, Minot; D. J. Halliday, Kenmare; C. V. Bateman, Wahpeton; R. H. Waldschmidt, Bismarck; W. H. Bodenstab, Bismarck; O. T. Benson, Glen Ullin; A. P. Nachtwey, Dickinson; W. W. Wood, Jamestown; M. J. Moore, New Rockford.

#### Introduction of President

The speaker introduced the president, Dr. F. L. Wicks, who presented Mr. Thomas C. Hutchinson, secretary of the Valley City Civic and Commerce association. Mr. Hutchinson extolled Valley City as a commercial, educational and recreational center, and welcomed the delegates to the city. President Wicks then delivered the following address: "It appears that there is in order some remarks from me. I have looked over some of the welcome addresses of the past presidents. They have been traditionally limited to a very few words. I want to give you a greeting and to tell you that you are truly welcome. I want to express my pleasure for the fact that we, as members of the profession, can get together.

"The Sheyenne Valley Medical society is one of the pioneer societies. Valley City has entertained the North Dakota State Medical association three times. The Sheyenne Valley Medical society have had two members who have occupied the office of president. Our society was formed back in December, 1904, as the Barnes-Griggs Medical society. On April 8, 1905, the charter was presented to the society and the name had been changed to the Sheyenne Valley Medical society. This society has been one of service as a component medical society ever since those early days. We have many doctors in our territory but in recent years this membership has decreased. However, we want you to know that even with this small membership, our greeting is none the less cordial and sincere.

"It is really too bad that we cannot have our full assemblage. We need the advice of our members of the association. But you, as delegates, are the elected representatives of our constituents. I am sure that the deliberations and actions here will find support both with your members back home and with us, the officers of the association. This is a time of great concern for our medical association. May I add my greeting and best wishes. I hope that this will be an efficient and harmonious session and when the time comes to think of holding full medical association meetings, we would be glad to see you back in Valley City when we can have the full assemblage. I will now turn the meeting back to your speaker."

#### Minutes of 1944 Meeting Approved

On motion made by Dr. Waldschmidt, seconded by Dr. Woutat, and carried, the reading of the minutes of the 1944 session, as published and circulated in the August 1944 issue of the JOURNAL-LANCET, were dispensed with and the minutes adopted.

#### REPORT OF THE SECRETARY

Dr. L. W. Larson, secretary, presented the following report, as printed in the handbook, which was referred to the reference committee on reports of the secretary and special committees.

The total membership for 1944 was 387. Of this number, 318 paid their annual dues, 10 were honorary members, and the dues of 59 members were cancelled because of military service.

Seven of our members died during the past fiscal year, two of whom were honorary members. Ten of those who paid dues in 1943 failed to pay their 1944 dues. Two new members were admitted to the association during the year.

Table No. 1 shows the annual membership for the past six years. The total membership for 1944 is the lowest for this six year period, and is due to the large number of deaths and delinquencies during the year. The revenue of the association from dues is accordingly decreased because the number of members who are in military service, and whose dues are cancelled, has remained stationary.

#### TABLE No. 1 Comparison of Annual Membership

	1939	1940	1941	1942	1943	1944
Paid Memberships	_ 394	387	374	366	331	318
Honorary Memberships	3	11	12	10	11	10
Dues Cancelled,						
military service	—	_	14	32	61	59
Total	397	398	400	408	403	387

Table No. 2 shows that the annual dues for 1945 are being paid quite promptly. To date 294 have paid their current dues.

Table	No.	2			
	Ma	ıy 5	Apr	il 20	May 5
•	1941	1942	1943	1944	1945
Paid-up Members	339	352	316	304	294
Honorary Members	12	10	10	10	9
Dues Cancelled, military service		31	58	59	57
	351	393	384	373	360

Field Work. Your secretary must again apologize for his inability to visit all the district societies during the past year. Those he has visited, however, show evidence of interest in scientific medicine and also the problem of medical economics. Some of the smaller societies are relatively inactive, but their members do avail themselves of the opportunity to attend the meetings of nearby larger societies.

Committees. Some of the committees have been unusually active during the past year. This is particularly true of the committees on medical economics and tuberculosis. The report of the committee on medical economics, appearing in the handbook, is the result of a tremendous amount of work on the part of the committee members, especially the chairman, and the association owes them a debt of gratitude.

Medical Economics. The Wagner-Murray-Dingell bill was never brought out from committee, but it has resulted in a great deal of discussion, both pro and con, throughout the nation. Senator Pepper's subcommittee on health has held numerous hearings at which the proponents and opponents of a system of federally controlled medicine have put forth their arguments. The report of this committee indicates a tendency on the part of the committee members, at least, to preserve the private practice of medicine, if possible. The report, however, calls attention to the unequal distribution and availability of medical care and suggests that some method must be developed in the near future which will relieve the situation, and, if possible, be acceptable to the medical profession. In the discussions over the problem of medical care, the spokesmen for organized medicine invariably stress the availability of hospital insurance and prepaid medical insurance plans. For this reason, the problem of prepaid medical insurance is demanding the attention of almost every state medical association in the country. Our house of delegates is confronted with this problem this year, and I hope that they will consider the question very carefully, and not be swayed too much by the pressure of minority groups in this country, nor should they disregard the fact that the public is becoming more and more interested in health matters both preventive and curative.

North Central Medical Conference. This organization, representing the physicians from Minnesota, Wisconsin, Iowa, Nebraska, North and South Dakota, met in St. Paul last December 10th. North Dakota was well represented, those being present being Doctors: Frank Darrow, F. L. Wicks, A. D. McCannel, W. A. Wright, A. E. Spear, and your secretary. The question of post-war planning, and especially prepaid medical insurance plans, were given thorough consideration by the various speakers. I believe this organization should be supported because it is a means by which the problems confronting our profession in these north central states can be freely discussed. Experiences in the various states can be made available to the other states and a common agreement, on matters of policy at

least, can be reached.

Full Time Secretary. This is a problem which has been in the minds of many of our members for several years. It is obvious that if our association is to grow and is to accomplish what its members expect of it, the secretary must be able to devote a major part of his time to the job. I doubt that there is a practicing physician in the state who can sacrifice the time which such an effort demands. Our public relations are not what they might be, and a full time secretary could do much to improve them. The major objection to a full time secretary in North Dakota is that our membership is necessarily low, and the revenue from dues limited. An annual budget of at least \$10,000 would be required if a full time secretary were employed. I believe the house of delegates should give serious consideration to this matter, even though it will require a marked increase in our annual dues.

I wish to thank the officers of the state association and the component district medical societies, as well as the members,

lished in the handbook.

Balance in checking account

for the cooperation they have given and the courtesies they have extended to me during the past year. I wish especially to thank President Wicks for the work he has done during his administration. He has answered his correspondence without delay, and has given much of his time and funds to the affairs of the association. The past year has presented many problems because of the work of the Governor's committee on health planning, and also the legislative session, and President Wicks has been willing to give freely of his time whenever called upon. Those who succeed him as president will have a most difficult time surpassing the record he has set as president of our association. RECOMMENDATIONS

1. That the association continue its financial support to the North Central Medical conference.

2. That the house of delegates appoint a committee to study the question of a full time secretary for the association and present a report to the next meeting of the house of delegates.

#### REPORT OF TREASURER Dr. W. W. Wood, treasurer, presented his report as pub-

April 1, 1944       \$2,743.85         Receipts of dues during year       2,890.00         Interest on bonds received       112.50	
Disbursements: Checks No. 493 to 510, incl., covering vouchers No. 655 to 673	\$5,746.35
	3,033.65
Check No. 508, covering voucher No. 671, uncashed	2,712.70 1 10.00
Net balance in bank	2,722.70
Balance in checking account, April 15, 1945. Bonds in safety deposit	4,500 00
	\$7,222.70

#### REPORT OF THE CHAIRMAN OF THE COUNCIL 1944-1945

Dr. N. O. Ramstad, chairman, presented the following report, which was referred to the reference committee on reports of the council, counciliors, and delegate to the American Medical Association,

The Council of the North Dakota state medical association met in Fargo, May 8 and 9, 1944, during the regular session of the association.

Dr. P. G. Arzt resigned as a member of the council and Dr. Joseph Sorkness was elected to fill the vacancy. Dr. C. J. Glaspell of Grafton was chosen to fill the vacancy caused by the resignation of Dr. George Williamson. Many members of the council paid tribute to Dr. Williamson for his long and faithful service as a member of the council.

The financial condition of the association was given careful consideration by the council. With a membership of less than 400 and a membership fee of \$10, we felt that a full-time secretary is not feasible; nor can a more extensive program be carried out by the association with the present limited income. It would seem advisable to consider a higher membership fee, in order that our association can be more active and protect the interests of the members and the public to a higher degree The following budget was adopted by the council:

North Central Conference	50 00
Committee on medical economics	100 00
Stenographer for annual meeting	150 00
Emergency fund for chairman of council	50 00
Emergency fund for council	200.00
1945 annual meeting	200.00
A M.A. delegate	125 00
Journal-Lancet	700.00

Secretary's salary	1,200.00
Postage and office supplies	175.00
Telephone and telegrams	50.00
Travel expense for secretary	150 00
Travel expense for president	50.00

Total \$3,200.00

May I call the attention of the house of delegates to the fact that the emergency funds for the council and for the chairman were budgeted so that these sums could be used if emergency needs arose. Dr. L. W. Larson, secretary of the state association, made an extensive report to the council. He reviewed the events of the past year which concerned the medical profession, and stated that in his opinion we could not have a full-time secretary without a budget of about \$8,000 00 per year.

Actions taken by the council authorized Dr. W. A. Wright and Dr. L. W. Larson to represent the association at meetings dealing with postwar planning. Monies allotted to the committee on medical economics are to be used for their travel expenses. The council authorized the payment of a stenographer for the 1944 meeting of \$100 and allowed \$50 extra for travel expenses because of the long distance she had to travel

It was agreed by the council that in the future the local host society for the state annual meeting be guaranteed up to the sum of \$200 to cover any deficiency in its convention fund If the deficiency is less than \$200, the society will be paid accordingly.

For the expenses of the delegate to the American Medical Association the council voted not to exceed \$125 The council allowed not to exceed \$700 for subscriptions to the JOURNAL-LANCET. The council authorized the payment of \$1,200 to the secretary for the coming year. A budget not to exceed \$175 was allowed for postage, stationery, and other supplies. The telephone budget was placed at \$150. Expenses as needed by the secretary for visiting societies was not to exceed \$150

The total amount appropriated at the meeting was \$3,150

The council appointed a Journal-Lancer committee, consisting of Doctors Larson, Long, Benwell, Toomey and Arnson, with Dr. L. W. Larson as chairman This committee is responsible for the publications in the JOURNAL-LANCET. A committee was appointed to edit the transactions of the association in the Journal-Lancer. This committee consists of Doctors Larson. Arnson and Ramstad,

The council elected the following officers for the coming year: Dr. N. O. Ramstad, chairman, and Dr. C J. Glaspel, secretary

At the request of President F. L. Wicks, a meeting of the At the request of President F. L. Wicks, a meeting of the council was called at Fargo, January 7, 1945. Present were Doctors F. W. Fergusson, J. C. Fawcett, W. H. Gitsdorf, A. D. McCannel, J. Sorkness, C. J. Meredith, C. J. Glaspel, P. H. Burton, President F. L. Wicks and Secretary L. W. Larson Also present were Doctors P. G. Arzt, G. F. Campana, G. M. Williamson, Mr. Eagles. W. A. Wright, F. W. Ford, W. H. Long, H. E. French, F. Darrow and J. F. Hanna Dr. F. L. Wicks, president of the association, gave a short address in which he reviewed the problems of the doctors of

the state and commended the spirit of service which has been rendered by officers and committee members. Dr. L. W. Larson gave a report of the condition of the association

Dr. G. M. Williamson reported that the board of medical examiners had passed a resolution granting temporary licenses to physicians who may come into the state. He stated that the board had carried out the provisions of the resolution and would continue to do so during the present war emergency.

Dr. W. A Wright gave a report for the committee on medical economics. The committee has had several meetings and had conferred with Mr. Eagles of the North Dakota Blue Cross The committee had developed a plan to cover surgical and obstetrical services in hospitals only. Dr. Wright recommended that the council approve the introduction of an en-abling act in the present legislature After this is done, plans would be submitted to the district medical societies for their consideration and the instruction of their delegates. The council voted in favor of submitting this enabling act to the legis-

The report of the committee on tuberculosis was presented by Dr. L. W. Larson and Dr. G. F. Campana, state health officer. This plan has been outlined to every member of the association by the secretary and the council approved and adopted the report of the committee unanimously. The council supported an amendment to the North Dakota state uniform drug act, which will place demerol on the list of narcotic

Dean French of the state university discussed the question of expansion of the medical school to a four-year course. A committee was appointed to consider Dean French's report, and the council accepted their report to the effect that the members of the North Dakota state medical association are interested in any movement which will improve the medical care of the people. It believes that improvement of the present two-year medical school be encouraged and steps taken to study the feasibility of changing the medical school to a full four-year course.

The council considered the request from the nursing profession to obtain registration controlling practical nurses. The council felt that this was not a propitious time for restrictive legislation, bearing in mind the probable draft of nurses in the

near future.

The council agreed that the committee on public policy and legislation be empowered to handle all legislative activities. The council voted to appropriate an additional \$200 for the expenses of the committee on medical economics.

The council voted that in view of travel restrictions and the war, the question of holding a state convention during 1945 be left with the committee on scientific program.

The meeting adjourned.

Respectfully submitted, N. O. RAMSTAD, M.D., Chairman of the Council.

#### REPORTS OF THE COUNCILLORS

The following reports of the councillors, as published in the handbook, were referred to the reference committee on reports of the council, councillors, and delegate to the American Medical Association.

First District

The following is a resume of the proceedings of the Cass-County medical society for the year 1944, as submitted by Dr. Charles Heilman, secretary.

'The Cass County medical society held eight regular meetings during 1944. In addition, we were hosts for the annual session of the North Dakota state medical association, held in

Fargo in May, 1944.

"The meetings were held, as has been our custom, at monthly intervals, except during the summer months. These meetings invariably consist of a good dinner, a short business meeting and a scientific program or special speaker talking on medical economics, or some subject of importance and general interest to our members. During 1944 some excellent scientific programs were presented by Dr. J. M. Adams, Dr. Walter A. Carley and Dr. O. H. Wangensteen of the University of Minnesota. At one meeting Mr. Donald Eagles discussed 'Trends in Prepaid Medical and Hospital Care.' At another meeting we enjoyed a movie on 'Malaria and Mosquito Control.' The discussions and interest created in this subject were no doubt responsible for the initiation of a definite mosquito control program in the Fargo area for the present season. At two of the meetings, a scientific program was provided by local talent, that is, by members of the local county society who made very satisfactory presentations.

"Early in December the Cass County society was host to our neighbor societies in Minnesota; the Clay-Becker, Park Region and Red River Valley societies. Owen H. Wangensteen was guest speaker. Nearly one hundred physicians were present at

this meeting.

"A complete report of the annual session of the state medical association has been forwarded to Dr. L. W. Larson, our secretary, in which the organization, statistics and criticism, with recommendations for improving these state meetings in the future, were made.

"Our roster for 1944 listed 64 physicians as members of the

society, including 14 who were in the armed forces."

The secretary of the Richland County medical society informs me that no meetings have been held during the past year. The officers are the same as they were last year.

PAUL BURTON, M.D., Councillor.

#### Second District

The Devils Lake District medical society completed a relatively quiet year. The society had a meeting every two months during the year. The programs consisted of routine business, usually case reports, and discussion of medical economics. An attempt was made to have outside speakers for most meetings, but the speakers were confined to those residing within the state because of the pressure during the war. The attendance of the meetings increased somewhat over 1943, and I believe considerably more interest was shown (this probably due to a large extent to the economic situation).

This district had 21 active members during 1944, plus 5 members serving with the armed forces, one honorary membership, and 5 physicians not interested in membership. There was no loss in membership during the year due to death or

transfer elsewhere.

JOHN C. FAWCETT, M.D., Councillor. Third District

The Grand Forks District medical society has completed a satisfactory year under the guidance of the following officers,

elected at the December meeting:

President, Dr. C. R. Tompkins, Grafton; vice president, Dr. Ralph Leigh, Grand Forks; secretary, Dr. A. F. Jenson, Grand Forks; treasurer, Dr. W. C. Dailey, Grand Forks; delegates to state convention, Drs. P. H. Woutat and W. A. Liebeler, Grand Forks; alternate, Dr. G. M. Williamson, Grand Forks.

We have 50 members in our society and, in addition, the following members are in the armed forces: Drs. Silverman. Brown, Canterbury, Griffin, Mahowald and Ransom, all of Grand Forks.

We have five honorary members, namely: Dr. F. N. Burrows, Bathgate; Dr. J. E. Countryman, Arch Cape, Oregon; Dr. G. W. Glaspel, Grafton; Dr. A. B. Field, Forest River; Dr. W. H. Welch, Larimore.

There is only one physciain in the district who is not a mem-

ber of the society.

Last year, there were six regular meetings held, with the average attendance of 18 members, and three special meetings with an average of 24. The April meeting was devoted entirely to the discussion of the many economic problems which confront our profession at this time. The September meeting was held in Grafton, as is the custom, with Dr. G. W. Hunter of Fargo, speaking on obstetrical problems.

There were three deaths during the year: Dr. H. M. Waldren. Sr., Drayton; Dr. O. H. Rystad, Grand Forks; Dr. E.

C. Haagenson, Grand Forks.

C. J. GLASPEL, M.D., Councillor.

Fourth District

The Northwest District medical society has had a very good year. We have held nine meetings during 1944 with an average attendance of 16. We now have 52 members in good standing with 10 men in the armed services.

During the year we have had some outstanding programs. Qut-of-town speakers included Dr. J. K. Anderson of Minneapolis who gave a splendid talk on office proctology; Dr. A. K. Hayne, professor of contagious diseases of the University of Illinois gave an especially good talk and conducted a round table discussion on contagious diseases, which discussion was entered into enthusiastically by members present. Dr. Clarence Dennis, associate professor of surgery of the University of Minnesota, discussed ulcerative colitis and Melvin Koons of the state public health laboratory of Grand Forks discussed the blood plasma program in North Dakota. He gave us information as to the equipment and services that we now have in the state handling this program.

At several of the meetings educational films were shown which added considerably to the interest of the meetings.

Our meetings have been held this year, as they have in the past, alternatively between Trinity and St. Joseph's hospitals. Drs. Cameron, Rowe and Breslich gave a very interesting discussion on gastric ulcer, diagnosis and treatment, and the

results of operative procedures on several interesting cases. The society passed a resolution adopting the fee schedule of the Public Welfare board to cover the cases handled by the Red Cross, in taking care of dependents of men in the armed forces. This has clarified the work of the Red Cross and has worked out very satisfactorily.

The Kotana society reports that they have had no special activities this year but for one annual meeting, the rest of the time combining their activities with the hospital staff meetings

Officers elected to serve for 1945 are: Dr. G. Harmon Brunner, president, Minot; Dr. A. F. Hammargren, vice president, Harvey; Dr. Woodrow Nelson, secretary, Minot.

ARCHIE D. McCANNEL, M.D., Councillor.

#### Fifth District

Herewith is the report of the Fifth District medical society for the year 1944.

Our society now has a membership of ten, five less than in 1941. We have lost one member, Dr. C. A. Platou, by death. Of the ten members, seven practice in Valley City, two in Cooperstown, and one in Nome; and of the seven in Valley City, two are limited to eye, ear, nose and throat specialties and five are in general practice. Two of the latter five are limtted in their activities by age.

Two meetings were held during the year. Because of our

small membership and distance to be traveled by three of our men, no scientific programs were planned, but some of our members attend scientific meetings of neighboring societies, and our members in Valley City have an opportunity for clinical discussions at the monthly hospital staff meetings. Two of our members are serving in the U. S. Army medical corps.

Officers of the society for 1945 are as follows: President, J. Van Houten; vice president, M. D. Wesley; secretary-treasurer, C. J. Meredith; delegate, A. W. Macdonald; alternate, C. J. Meredith.

Excellent harmony and cooperation prevails in the society. 'C. J. MEREDITH, M.D., Councillor. Sixth District

During the past year the Sixth District medical society has had a successful year. The attendance at the meetings has been good and discussions of medical and economic problems have been interesting and helpful. The program committees have functioned well and the papers presented have been well pre-pared and of universal interest. The following papers have been presented:

1. Management of Diabetes Mellitus-Dr. A. C. Grorud.

2. Plasma Program in North Dakota-Dr. F. J. Hill. 3. Changing Fashions in Immunization Procedures - Dr.

Harry Wheeler.

 Symposium on Penicillin—Drs. L. H. Fredricks, P. L. Owens, L. W. Larson. 5. Restaurant Sanitation in Bismarck and the Ice-cream Or-

dinance-Dr. P. L. Owens.

6. Private Water Supply Testing-Dr. K. Lauster, state sanitary engineer.

7. Comments on Medical Problems in North Dakota-Dr. M. S. Jacobson.

Symposium on Abnormal Uterine Bleeding-Drs. P. L.

Owens, L. B. Moyer, A. M. Brandt.

9. Plastic Surgery—Dr. B. Lannin, Minneapolis, Minn.
Our present membership is 66, eight of these are in United

States services. One new member has been admitted: Dr.

George Campana, our state health officer.

The present officers are: President, Dr. P. W. Freise; vice president, Dr. F. F. Vonnegut; secretary and treasuter, Dr. W. B. Pierce; censors, Drs. G. R. Lipp, W. H. Bodenstab and F. B. Strauss; delegates, Drs. R. H. Waldschmidt, O. T. Benson and C. C. Smith.

Throughout the year good fellowship has prevailed and there has been no dissension.

N O. RAMSTAD, M D., Councillor. Seventh District

Two meetings of the local medical society were held this year, one on October 4, 1944, and one on March 8, 1945. At the October meeting, business matters and support of the state public health plasma program were taken up. At the March meeting, a scientific film on nutrition was shown, as well as election of officers for the ensuing year. A third meeting to consider the North Dakota physician's service is scheduled for April 26th.

At present there are 18 members of the society with dues paid for 1945.

JOSEPH SORKNESS, M.D., Councillor,

Eighth District

281

The Southern District medical society held two meetings during the year, the first at Ellendale on October 19, 1944. The speakers were Dr. Geo. Campana, state health officer, and Mr. Melvin Koons, from the state university. The second meeting was held at LaMoure, November 30, 1944. The speaker was Dr. Francis C. Lawler, bacteriologist at the state university, his topic being Malaria. He showed numerous slides presenting the different stages in the development of the organ-

Dr. Robert K. Dodd of Lisbon and Dr. Ivan Linsen of La-Moure were admitted to membership during the year. The total membership in the society is eight.

The officers are: President, Dr. F. E. Wolfe; secretary-treasurer, Dr. H. J. Meunier; delegate to the state meeting, Dr. V. D. Fergusson, and alternate, Dr. Roy Lynde.

F. M. FERGUSSON, M.D., Councillor. Tenth District

The Southwestern District medical society held four meetings during the last year. Each meeting was well attended and was enjoyed by all present.

We have nineteen active members and two members in the armed forces which gives us a total membership of twenty-one W. H. GILSDORF, M.D., Councillor

#### REPORTS OF STANDING COMMITTEES

The following reports of standing committees were referred to the reference committee on reports of standing committees.

Medical Education

Your committee on medical education would call attention to its reports of last year and of earlier years to indicate the plan, scope, needs, etc., of the school of medicine of the University of North Dakota. Since the meeting of last year, the school has remained in almost continuous session, the accelerated program demanded by the national emergency. Classes have remained of the same size, but admissions come approximately every nine months; work and transferring have gone on as usual.

As newer items, we can report that the state legislative session of 1945 made an appropriation for the school that is in almost exactly the same terms as that of 1943, and consequently scarcely adequate; it also took two steps that are encouraging for the school, senate Bill 115 and an appropriation for a science building By senate Bill 115, it recognizes the medical school as to be thought of as a unit about which a possible future medical center is to be built; it authorizes the school to accept possible benefactions from private sources, or the government; and it creates a medical center advisory committee. The medical council advisory committee is authorized to make a survey of the efforts and the needs of the state in the way of hospitalization and medical care, the provisions for the insane, the tubercular, crippled children, and indigent patients of any kind, and to determine whether it will be possible to work out a plan that will also make possible the expansion of the school to include clinical teaching.

H. E. French, M.D., Chairman

#### Necrology and Medical History 1945

In accordance with the traditions of our profession, we pause in the midst of the affairs of life to pay our devout respect to those of our colleagues who have left our ranks, since last we To those bereaved we extend our sincerest sympathy Their loss is, in a large measure, also our loss. The place of companion, friend and co-worker is never completely filled May grief of the hour be mercifully lessened with the passage of time. May each find satisfaction in the heritage of a life spent in glorious service to mankind

J W CAMPBELL

Dr. John William Campbell, 75, passed away April 13, 1944, in Fargo, where he had resided for many years He was a native of Hanover, Canada Dr. Campbell was a graduate of Rush Medical college, class of 1897, and was licensed to practice in North Dakota in January 1898. In practice Dr. Campbell paid particular attention to diseases of the eye, ear, nose and throat. Besides his Fargo location, he had practiced at other points of the state, including Valley City and Larimore. Survivors, besides Mrs. Campbell, are two sisters, Miss Belle Campbell of Walhalla, N. D., and Mrs. Delbert McQuin of Harlowton, Montana.

CARL ANTON PLATOU

Dr. Carl Anton Platou, 57, died in Pompano, Florida, May 22, 1944. He had spent the past winter in the south in hopes of recovering from an heart ailment. He was anticipating an early return to practice in his home at Valley City, when he was stricken. Dr. Platou was a native of Staten Island, New York. After preliminary education at the Thomas Hefferly preparatory school, he attended Johns Hopkins medical school and graduated from the Maryland Medical college in 1912. He was licensed in North Dakota in 1916. His internship was served at the Buswich hospital in Brooklyn. During World War 1 he was a captain in the medical corps. He was past commander of the American Legion; a member of the 40 and 8; and a past worshipful master of the Masonic blue lodge. Dr. Platou was first located at Litchville, N. D., serv-ing that community from 1914 to 1929 and since, practicing in Valley City. Survivors are Mrs. Platou, a daughter, Carolyn Ann; four sisters and three brothers, including Col. Pedro Platou of the M.C.A.U.S.

CLARENCE W. ROBERTSON

Dr. Clarence W. Robertson, 53, passed away May 22, 1944, at Jamestown, in which location he had practiced for the past eight years. He had previously been a member of the Northwest clinic at Minot. He was the victim of a coronary attack. Dr. Robertson was a native of Forest River, N. D. He graduated from the state university in 1911 and from Rush Medical college, class of 1915. He was registered in North Dakota in 1920. Dr. Robertson interned at Cook County with special training in eye, ear, nose and throat work. He practiced this specialty as a member of the DePuy-Sorkness clinic. Dr. Robertson was a veteran of World War 1, serving as a captain in the medical corps. He was a member of the American Legion, the Elks, and El Zagal Temple of the Mystic Shrine. At the time of his death he held the office of vice president in the North Dakota academy of ophthalmology and otolaryngology. Survivors are Mrs. Robertson; his parents, Mr. and Mrs. J. D. Robertson of Park River; a sister and a brother.

#### HUGO NEUKAMP

Dr. Hugo Neukamp, 68, died at Hosmer, S. D., June 1, 1944, as a result of an automobile acident. Dr. Neukamp was a native of Soest, Germany, and pursued his medical education at the University of Bonn, from which he was graduated with highest honors in 1899. He was licensed in North Dakota October 23, 1902. Coming to the United States in 1900, he practiced his profession in New York City for a short period of time. In 1901 he located in Fessenden, N. D., and practiced also at McClusky, Beulah and Strasburg before going to South Dakota to locate at Hosmer in 1930. Dr. Neukamp was a Mason and belonged to state and national medical associations. He is survived by his daughter, Mrs. Alice Craig of Phoenix, Arizona, and a son, Frank H. Neukamp, Major M.C.A.U.S.

#### LLOYD B. DOCHTERMAN

Dr. Lloyd B. Dochterman, 66, died June 6, 1944, at Williston, where he had practiced for forty years. His death was caused by a retroperitoneal hemorrhage. He was born in Covington, Ind., and was left an orphan when four years of age. By hard work he earned his way through college, graduating first in pharmacy at Valparaiso university, and later received his degree in medicine from the Detroit Medical college in 1900. He came to North Dakota to locate at Bottineau and was licensed to practice on July 12, 1900. Dr. Dochterman later, in 1904, moved to Williston where he spent his career in the profession with the exception of his military service as a captain in the medical corps of World War 1. Dr. Dochterman knew the hardships of pioneer practice, and on his sixtieth birthday was honored by more than 1000 of those whom he had brought into the world. He was civic-minded, serving on the city commission, the library board, and for many years as health officer of the city. He was a staff member of both Mercy and Good Samaritan hospitals. Dr. Dochterman was a member of the Elks, the American Legion, and the 40 and 8. He was a member of the Christian Church. He is survived by Mrs. Dochterman, a daughter, Lois, and two sons, Donald and

Lt. Lloyd D. Dochterman, M.C.A.U.S. His body was returned to his birthplace for burial.

PIERRE ULRIC LABERGE

Dr. Pierre Ulric LaBerge, 83, died at his home city, Ambrose, July 4, 1944. He was a native of Montreal and graduated in medicine from Victoria university, Montreal, Quebec, class of 1886. He was licensed in Dakota Territory February 1, 1887. Dr. LaBerge came to the state at the age of 26, and engaged in practice first in the Grafton area. He also practiced at Williston, Crosby, Fortuna and Westby.

JACQUES VOORHES QUICK

Dr. Jacques Voorhes Quick, 82, died July 16, 1944, in a Fargo hospital. He had been in ill health for several months. Dr. Quick had been a resident of Wahpeton and a practitioner there for more than 55 years, with the exception of a year and a half, which time was spent in Alaska in 1898-9. In point of length of service, he was one of the oldest of our profession, only ceasing practice at the advent of his last illness. Dr. Quick was born in New Jersey and graduated first from the Philadelphia College of Pharmacy and then the Jefferson Medical college in 1886. He was licensed to practice in Dakota Territory May 2, 1887. He came to Wahpeton in 1888. Mrs. Quick died in 1940. He is survived by two daughters and a brother, H. B. Quick, of Fargo.

JOHN SAMUEL WHITSON

Dr. John Samuel Whitson, 76, passed away at Enderlin August 6, 1944. Dr. Whitson retired from practice two years ago because of ill health. He was a native of Indiana and graduated from Rush Medical college, class of 1892. He was licensed January 7, 1916. Dr. Whitson had been a resident in North Dakota since 1912. He was a member of the Baptist church and Masonic bodies, including the Shrine. Mrs. Whitson died February 6, 1944. Survivors are a daughter, a stepdaughter and three grandchildren.

OLAF H. RYSTAD Dr. Olaf H. Rystad, 68, of Grand Forks, died August 17, 1944, while on a vacation at Lake Plantaganet, Minn. Dr. Rystad was born in Norway and came as a small boy with his parents to live at Fisher, Minn. He was graduated from the Chicago college of medicine and surgery, class of 1913, and was licensed in North Dakota January 19, 1944. He first practiced at Landa, N. D., but removed to Grand Forks in 1921 at which point he continued his work until he was called from his labors. Survivors are his wife and one daughter, Mrs. Hans Lie, a resident of California.

#### CHARLES MACLACHLAN

Dr. Charles MacLachlan, 83, passed away in his home city of New Rockford on October 14, 1944. He had been in ill health for a number of months, his death being caused by complications of bronchial pneumonia. Dr. MacLachlan was a native of Ontario, Canada. He received his early education at Erie and graduated from the Canada business college in 1880. He first came to Dakota Territory in 1883, filing on a piece of land south of the present town of Brinsmade. After proving up on his claim in 1884, he decided to study medicine, so entered the medical department of the University of Toron, to from which he was graduated in 1889. Soon after his graduation, he returned to New Rockford to commence his career as a practitioner of medicine. He was registered June 17, 1889. Dr. MacLachlan knew full well the life of the pioneer physician. He was a man of courage, self-reliance, integrity and great versatility. Many honors came to him during his long years in the profession. He bore them all with becoming grace. He balanced every equation by the giving of efficient service. Dr. MacLachlan was a member of the first state board of medical examiners; served as surgeon for the Northern Pacific and Great Northern railways; as a legislator; was appointed surgeon general of the national guard, serving from 1895 to 1911 with the rank of colonel; was president of the state medical associa-tion in 1909. He served two terms as president of the state board of health; two years as a trustee for the state hospital at Jamestown; for a number of years was a member of the game and fish commission and served as head of the state tubercu-losis hospital at San Haven, retiring in 1937 after eight years with the institution. Dr. MacLachlan was a past president of the International Peace garden association which he helped to

organize and which held his interest to his final days. He was a member of the Masonic bodies of Fargo and a life member of the Scottish Rite and the Order of the Mystic Shrine. In younger days, he was active as an organizer and member of the Yeomen, Odd Fellows and Workman lodges. Survivors are Mrs. MacLachlan and three daughters, Mrs. O. J. Campbell and Mrs. Marjorie Dale, both of Minneapolis, Mrs. J. S. Williams of St. Paul, and seven grandchildren.

WILLIAM H. PORTER

Dr. William H. Porter, 71, died October 15, 1944, in a Devils Lake hospital where he had been a patient for several months. Dr. Potter practiced his profession in North Dakota for 41 years, being located first at Olga for two years and the remainder of his years of service at Calvin. He was born April 20, 1873, at Hillsburg, Ontario, and came to the United States in 1886. He received his early education in the schools of Cavalier county and his college education at the Mayville normal school. Dr. Potter was graduated in medicine from the University of Illinois, class of 1903. He was licensed in North Dakota October 15 of the same year. Dr. Potter was a prominent civic and political leader, he was a state senator from 1918 through 1933, and again held that office by rea-son of his election in 1943. He was a Democrat. Because of his prominence in politics, he was one of the four known as the "Four Horsemen." Much of his interest and influence was along public health lines. He held the chairmanship of the senate committee on public health for many years. Dr. Porter was a member of the staff of Mercy hospital, Langdon; head of the Calvin school board; president of the county school offior the Carvin school board; president of the county school offi-cers' association; a member of the Masonic blue lodge and Eastern Star of Calvin; the Scottish Rite bodies of Langdon and Kem Temple of the Mystic Shrine, at Grand Forks. Sur-vivors are Mrs. Porter; a son, William H. Porter, Jr.; a grand-son, William H. Porter, III; a brother, Dr. C. A. Porter, dentits, of Fargo; two other brothers, including Edward E. of Calvine, a sixter Mrs. D. E. McDonold of Form and the Calvin; a sister, Mrs. D. F. McDonald, of Fargo, and three other sisters living in the west.

JAMES M. GIBBONS
Dr. James M. Gibbons, 62, retired physician of Bismarck, died November 24, 1944. Dr. Gibbons graduated from Northdied rovember 24, 1941. Dr. Gibbons graduated from rootth-western, class of 1908, and was licensed to practice in North-Dakota in October of the same year. He had practiced at Almont, Finley and Bismarck, giving special attention to eye, ear, nose and throat work. Dr. Gibbons is survived by Mes. Gibbons and a brother, G. G. Gibbons of Spokane, Wash. Burial was made at Sr. Mary's cemercty at Bismarck. THOMAS PETER ROTHNEM

Dr. Thomas Peter Rothnem, 61, died January 19, 1945, at his home in Fargo. He had retired from practice after having suffered a stroke two years ago. Dr. Rothnem was a native of Oslo, Norway, and came with his parents to America when eight years of age. He received his education in the schools of Minnesota, attending St. Ola college, Northfield, and was graduated from the medical department of the University of Minnesota with the class of 1912. He was licensed to practice in North Dakota January 10, 1919. Dr. Rothnem was in general practice at Wendell, Minn., until 1917, when he took postgraduate work and then specialized in toentgenology, coming to Fargo in 1918, where he was associated with the Fargo Clinic For many years he was a director of this group. He held membership in several national societies of radiology and was author of numerous papers pertaining to his work. Dr. Rothnem was a member of the First Lutheran church of Fargo. He is survived by Mrs. Rothnem, a daughter Charlotte, in training at the Swedish hospital in Minneapolis; a son, Lt. Morris Rothnem, of the Army medical corps at Camp Atterbury, Indiana; three

brothers, three sisters and one grandchild.

STANLEY EARL PATTERSON

Dr. Stanley Earl Patterson, 43, died in the Mandan hospital, Dr. Stanley Earl Patterson, 49, died in the Avandan nopital, Mandan, N. D., February 6, 1945, after a long illness. Death was caused by a liver ailment and complications. Dr. Patterson was a native of Roland, Manitoba, Canada, where he received his early education. He graduated from the University of Manitoba with the class of 1928. He was licensed to practice in North Dakota January 9, 1931. Dr. Patterson interned at T. Raufi Character Williams and Williams. St. Bomface hospital, Winnipeg, and the Shriners' hospital in the same city. He practiced first at Oak Lake, Manitoba, in

1928, coming later to North Dakota to locate at Rhame in 1931. In 1937 he moved to Mandan and remained there to the end of his life. Dr. Patterson was a member of the Presbyterian church, the Masonic lodge, the Elks lodge and the Lons club. He is survived by Mrs. Patterson; two children; three brothers and two sisters. The body of Dr. Patterson was returned to his birthplace for burial.

FRED C. SOPER

Dr. Fred C. Soper, 63, died in a Fargo hospital February, 1945, as a result of pneumonia Dr. Soper was a native of Stanwood, Iowa. He graduated from Cornell college and studied medicine and graduated at the University of Iowa, with the class of 1905. He was licensed to practice in North Da-kota July 6, 1906. He started his medical career as a practitioner at Leonard and afterwards was located at Medina and Erie, all in North Dakota. For many years he had practiced at Dilworth, Minn, and since 1938 held the office of coroner of Clay county. He was surgeon for the Northern Pacific beneficial association. Dr. Soper was a member of the Masonic order and the Advance lodge of the Odd Fellows. He was a member of the Presbyterian church. Besides Mrs. Soper, he leaves three daughters and a sister. Burial was made in the Riverside cemetery, Moorhead, Minn.

DARIE LEMIEUX
Dr. Darie Lemieux, 70, of Rolla, N. D., died March 26, 1945, in a Bottineau hospital. Dr. Lemieux was a native of Quebec, Canada, and graduated from Laval university. He was licensed to practice in North Dakota April 12, 1900. He had been a practitioner of the state for 46 years, about half of which time he was a resident of Rolette county, where for a number of years he held the office of county health officer Dr. Lemieux first entered practice at Fargo and had also practiced at Dunseith, Leeds, New England and Stanley before locating at Rolla. He was civic minded and held many positions of trust and responsibility. He was a member of the house of representatives at the 1905 session; served four years as mayor of Dunseith; was a member and the first secretary of the board of trustees of the state tuberculosis sanatorium and held the office of colonel on the staff of Governor L B. Hanna. Dr Lemieux had studied in France in 1908-9 and during World War 1 was an acting assistant surgeon in the U.S. public health service. Dr Lemieux was a member of the Knights of Columbus and the Elks lodge. Survivors include Mrs. Lemieux and three children, one being Lt. Corinne H., now serving in France with the Army nurse corps.

EDWARD CORNELIUS HAAGENSEN

Dr. Edward Cornelius Haagensen, 75, died March 28, 1945, in a hospital in his home city of Grand Forks. His death occurred as a result of a heart attack suffered one week earlier.

Dr. Haagensen was born in Cambridge, Wis, removing with
his parents at an early age to Evanston, Ill., where his preliminary education was acquired He was graduated from the Chicago Medical college with the class of 1894 and was licensed Chicago Medical college with the class of 1074 and was incensed to practice in North Dakota July 17, of the same year. In starting his medical career, Dr. Haagensen chose Hillsboro, N. D., where he practiced his profession for twenty-five years At the end of this period of service he removed to Grand Forks, where he had since resided. He was city health officer of Grand Forks at the time of his death. Dr. Haagensen was a member of local, state and national medical bodies, and his lodge affiliations included membership in the Scottish Rite and Kem Temple of the Mystic Shrine, and the Fraternal Order of Eagles. In the passing of Dr. Haagensen, his home city has lost one of its prominent and valuable citizens; his profession one of its real and reliable pioneers Surviving Dr Haagensen are Mrs Haagensen, the former Henrietta Paulson of Hillsare Mrs Flaagensen, the former refinited radiation of Filisboro, and seven children, including Dr. Cushman D. Haagensen of New York City and Lt. Darrell Haagensen of Washington, D. C. Surviving also are two sisters.

G. M. WILLIAMSON, M.D., F. L. Wicks, M.D.,

Co-Chairmen.

Public Policy and Legislation The following is a report of the committee on public policy and legislation:

Our committee first met on January 7, 1945, in Fargo at the same time the board of medical examiners and council were meeting.

The entire group discussed the program of legislation, especially in regard to endeavoring to pass an enabling act for a prepaid medical insurance program at the next legislature. This act was proposed by the economic committee and was practically the same as the plans in the states of Michigan, Minnesota, and others, where passage has made possible this type of

prepaid medical insurance.

Plans were made to have the enabling act introduced at the state legislature in 1945, and considerable assistance was given in the senate by Dr. E. C. Stucke of Garrison and Dr. G. F. Drew of Devils Lake. Dr. F. L. Wicks and Dr. L. W. Larson appeared before the committee and we are glad to report that the enabling act was passed in the senate by a vote of 44 to 3, and in the house by a vote of 75 to 8. It carried the emergency clause, and became a law when the governor signed the bill on February 28.

This was the only matter that came before the legislative

committee this year.

ARCHIE D. McCANNEL, M.D., Chairman.

#### Tuberculosis

Permit me to report that the committee on tuberculosis has conferred with the state health officer and Miss Katen, secretary of the North Dakota anti-tuberculosis society, and formulated plans for cooperation in a screening program for tuberculosis to be carried out with a mobile unit under the auspices of the state health department and the state tuberculosis committee.

Before we undertook this activity, we canvassed the medical profession in North Dakota and they voted overwhelmingly in

favor of the project.

The unit will probably be put in operation this summer and Dr. Campana has informed me recently that a staff is complete, including a physician to read the films, so that burden will not fall upon the roentgenologists of the state.

When suspect cases are found, they will be referred to the medical profession for study and treatment. The first project will be the screening of high schools and institutions of higher learning, and the program will be expanded as rapidly as the facilities are available.

J. O. Arnson, M.D., Chairman.

#### Official Publication

The relationship with the manager and editor of the JOURNAL-LANCET during the past year has been satisfactory. All material submitted to the JOURNAL-LANCET has been published without question. Appeals from the editor have been received from time to time for more material concerning our association, which indicates the desire of the JOURNAL-LANCET management to be of service to the association. The quality of the papers presented in the JOURNAL-LANCET has remained high, in spite of the shortage of available manuscripts because of the war.

L. W. LARSON, M.D., Chairman.

#### Cancer

As this report is being written, the first nation-wide, concerted effort to raise five million dollars to conquer cancer is being made by the American Cancer Society. The reports re-ceived to date by the North Dakota Division of the Field Army indicate a wide-spread interest in the problem of cancer by the citizens of North Dakota. Informative literature, stressing the need for periodic physical examinations by the family physician and the importance of knowing and recognizing the danger signals which may mean cancer, is reaching thousands of our citizens as a result of this campaign. Obviously, the physician will be consulted with increasing frequency by people who do not have cancer. The family physician, who is usually consulted first, will be confronted with the opportunity for the discovery of early malignant lesions, or the ruling out of cancer by the discovery of some other explanation for the patient's symptoms. This gives the physician an opportunity to practice practical preventive medicine, and to demonstrate his ability to assume responsibility for the physical well-being of his patients. With this opportunity, however, goes a grave responsibility. The physician must give such a patient a sympathetic hearing, a thorough physical examination, and the benefit of consultation when needed. To do less will serve only to undermine the confidence of the public in our profession. Lay peo-ple are contributing freely of their time and money to conquer

cancer, that dread disease which is the second cause of death in the United States and kills 165,000 Americans every year. The campaign of the American Cancer Society to raise funds for its program of education, research, and service to cancer patients, deserves the wholehearted support of the medical

profession.

Thirty-six North Dakota physicians attended the special course in cancer at the continuation center, University of Minnesota, during the first four days in February of this year, This course was sponsored by the executive committee of the North Dakota division of the field army, of which the members of your committee on cancer are members. The expenses of the North Dakota physicians attending the course were paid from a fund into which the field army and the state health department contributed equal amounts. The course was ar-ranged by Dr. W. A. O'Brien, director of postgraduate medical education at the University of Minnesota, and was designed to be of particular interest and value to the general practitioner. The enthusiasm with which it was received by those fortunate enough to attend, indicates the excellent job done by Dr. O'Brien and the faculty of the University of Minnesota. It is the hope of the field army that similar courses can be arranged in the future, so that every general practitioner in the state may have an opportunity to learn the important facts about the diagnosis and treatment of cancer, especially in its early stage.

L. W. LARSON, M.D., Chairman.

#### Fractures

No meeting of the fracture committee was held during the year of 1944. However, during the summer of 1944, there were communications from Dr. Charles Scudder of Boston in regard to the fracture work in North Dakota. His suggestions have been carried out wherever possible.

R. H. WALDSCHMIDT, M.D., Chairman.

### REPORT OF COMMITTEE ON MEDICAL ECONOMICS

For several years past the committee on medical economics has been charged by the house of delegates with the task of studying prepayment programs or, as they have lately come to be called, medical service plans. This has been done, and each year the committee has reported their conclusions to the house of delegates. Invariably the report concluded that the time was not yet ripe for us, in North Dakota, to set up a medical service plan.

In 1944, a resolution from Cass county urging the association to sponsor a medical service plan was referred to the economics committee by the house of delegates. Apparently then a substantial number of our members felt that the time had

arrived for us to embark on such a venture.

You are all aware of the fact that the private practice of medicine on a fee for service basis has been under attack for many years and that various people in and out of the profession, and in and out of the government have suggested many changes. Such changes range all the way from straight federalization of medical care to expansion of prepayment facilities.

In North Dakota during the past year there has been agitation mainly by certain farm groups for a marked change in the system of private medical practice. Without going into detail, it may be stated that one group is working towards a program leading to the public health authorities taking over certain functions of the practicing physician. The other group is trying to establish complete control over medical practice by setting up groups of doctors, who will work for them on a salary basis. Many of us now feel that a purely negative attitude toward these problems is not the proper approach. It is our feeling that they must be met by a positive approach in which we can offer a sound program leading to a better and more equitable distribution of medical care.

We do not wish to abandon such tried and true principles of medical practice as free choice of physician, personal physician patient relationship, nonintervention of a third party and financial responsibility of the individual to his doctor. However, if there is a way in which we can help people meet the cost of illness in a more satisfactory manner, without sacrificing any of the basic principles to which we adhere, it seems that it would be to our advantage to follow this way. A medically

August, 1945 285

sponsored non-profit prepayment plan offers such a way. A large amount of experience in this type of medical service is now available to us following pioneer work done in Michigan and California. We can also benefit from the experience of hospital service associations. At the present time medical service plans of some sort are operated, or in the process of being put into operation in 38 states, as well as in many counties, cities and districts.

Experience elsewhere teaches us that:

1. Comprehensive complete medical care programs cannot be offered at the present time because either the premium is so high that people will not buy it or the service demands are so great that losses quickly appear.

2. There is a demand for surgical and obstetric benefit pro-

3. It is possible to provide such policies providing for some of the more expensive types of care at a premium well within

the ability to pay of large numbers of people. 4. Many such people are now subscribers to hospital service associations.

5. It has been found expedient for medical service plans and hospital plans to work together, especially in the matter of selling and collections.

Several meetings of the economic committee were held during the past year and it was decided that a tentative plan be drawn up and submitted to the house of delegates at the 1945 annual session. The first step in the inauguration of such a plan is the passage of an enabling act in the state legislature. Such an act was drawn, approved by the council of the association and passed at the last legislative session as House Bill No. 187. This act sets out the condition under which non-profit medical care corporations may be set up and operated in North Da-kota subsequent to its passage. The act provides that a majority of the board of directors of any such corporation shall be licensed doctors of medicine. Other parts of the act have to do with the relations of such corporation to the insurance department, non-profit nature, tax exemption and other pertinent provisions.

In preparing a medical service plan for consideration by the house of delegates this committee has studied a great deal of material, much of it of a conflicting nature. We are fortunate in that we have available experience gained in other states, notably in Michigan and California, as well as hospital associations. During this time we have received most valuable assistance and counsel from Mr. Don Eagles, executive director of the North Dakota hospital service association (Blue Cross plan).

It is manifestly impossible in a review of this nature to go into the background of experience elsewhere which has led us to make certain decisions regarding what we think would apply in North Dakota. It is our belief that most of you will have a reasonable general knowledge of developments in the field of medical service plans so that you will be familiar with present day trends and the reasons for their development.

We have then come to the conclusion that the time has come for the North Dakota State Medical association to sponsor a medical service plan offering a limited type of service. We believe this should be done as a sincere effort on our part to assist persons of low and medium income to provide insurance against the expense of larger illness, the so-called catastrophic illnesses We feel that this is a public service worthy of the great traditions of medicine wherein the welfare of the patient is always paramount. We anticipate a highly favorable public response and urge the adoption of this plan as a measure which will greatly enhance the respect accorded the organized profession in the public mind. We definitely do not think of or propose this program as a financial advantage to the profession. The very nature of the plan is such that in most instances participating physicians will probably receive somewhat less payment for services rendered than they would in ordinary practice. This will especially apply to specialists and clinic groups. On the other hand, there are various tangible benefits such as prompt payment which should to a certain extent offset a slightly smaller fee. Further, it is anticipated that primarily our plan will appeal to the small wage earner, the so-called white collar class who in some instances are not able to pay very ordinary

We wish especially to emphasize the fact that the plan is not being offered as a scheme for the benefit of the medical profession, but as a public service and primarily for the benefit of those who would like to budget their medical expenses, or at least insure themselves against surgical and obstetric expenses. It is to be hoped that in the discussion, this fact will be constantly in your minds, and if you feel that we are offering to make too much sacrifice for the general good, now is the time to express this opinion. The committee feels that the general advantages rather outweigh the disadvantages.

#### OUR PROPOSED PLAN

At our meetings to date we have drawn up a tentative plan which we submit to the house of delegates:

Name-North Dakota Physicians Service; a corporation with proposed by-laws summarized as follows:

Headquarters-Fargo. Membership of corporation is the house of delegates. Annual meeting coincides with annual meeting of house of delegates. Board of directors appointed by house of delegates. Outlines duties of board of directors.

Committees: Provides for central professional service com-mittee of three directors to control all medical aspects of plan. Procedure for handling any complaints by or against a physi-

Officers: President, executive vice president and medical director, treasurer, secretary, other vice presidents. Outlines duties of each.

District committee: Provision for a district administrative unit where advisable and a district professional service committee which will serve under the central committee

Subscribers: Any resident of North Dakota whose annual income does not exceed \$3000 per year may become an unlimited subscriber. One with an income above \$3000 may join as a limited subscriber. Free choice of physician is mandatory

Payments to physician: Will be on the basis of agreed fee schedule subject to prorating in any month when bills exceed amount available for payments for service

Participating: Any duly licensed medical doctor may become a participating physician by application to the corporation.

This is a brief summary of the proposed by-laws which are written out in full in a later section.

There is also a proposed agreement between participating physicians and the corporation in which the regulations are outlined as to relationship between them. Section I defines the difference between an unlimited and a limited subscriber. In the case of a limited subscriber the physician may charge any fee he desires and apply what he receives from the corporation as a part payment. Whereas in the case of an unlimited subscriber, the physician agrees to accept the amount received from the corporation as payment in full for the particular service rendered. In effect, this means that a limited subscriber has a eash indemnity contract promising him specific maximum cash benefits for a specific situation, whereas the unlimited subscriber receives actual services without added cost, that is a service contract.

The pro rata feature is brought out here, but it is to be noted that deficits suffered in any one period are to be paid whenever a future surplus makes it possible.

The physician, of course, agrees to render whatever services are required without prejudice due to the fact that his patient is a subscriber. He is not obligated to accept any case, but should not refuse simply because the patient is a subscriber. In general the corporation role is concerned with financial matters and does not in any other respect change the traditional physician patient relationship

The appended fee schedule is as everything else only tenta-tive. However, it is felt that no very appreciable increases could be made in this schedule and still offer a satisfactory subscriber contract. Possibly some minor downward adjustments may be required In general, however, we believe that this suggested schedule should remain as it is.

A complete sample subscribers contract has not been drawn up, but the proposed benefits, regulations, etc., have been discussed and a set of "definitions" have been drawn up. The portion of this report labeled definitions would form a part of, or become the basis of any subscribers contract. Any such contract will offer payment for surgical and obstetrical care

only, and would be a medical service contract of a restricted type, limited to specific types of disease.

The term surgical service shall mean any operative and cutting procedure for the treatment of diseases and injuries and the treatment of fractures and dislocations. Obstetrics means the treatment of conditions pertaining to pregnancy. Originally it was intended that payment should only be made for services rendered in an approved hospital. However, it is felt that this provision is not entirely suitable to conditions in North Dakota and it was decided to offer payment for surgery and obstetrics in the hospital, office or home. A final decision in this matter might well be left to the directors of any corporation set up. It may be noted here that some changes will be needed in the definitions as presented in order to make these provisions uniform throughout.

Methods of payment to limited subscribers and for different procedures during one hospital admission are provided for in section 3. Definite limitations must be imposed as to the services rendered. In general these are:

1. A limitation of \$150.00 as payment for any one or for a series of related surgical procedures.

Exclusion of hospital, laboratory, x-ray, nursing service, medicines, drugs, anesthesia and related services.

3. Compensable injuries are not to be included as well as various chronic diseases as tuberculosis, mental diseases and nervous disorders.

4. Tonsil and adenoid operations require a six months membership. Some similar provision might be necessary in the case

of hernia and appendectomies for chronic appendicitis. 5. Obstetrical care is only available to those who have been members for 10 months. However, care for obstetrical conditions other than delivery at term may be furnished, provided the individual was not pregnant for 30 days following date of application. Obstetrical service of any kind would be available only to those joining in groups, not to individual subscribers.

Certain regulations are set up outlining relations between nonparticipating physicians and the corporation. It is likely that

some adjustments may be needed here.

There are other mainly business provisions dealing with payments cancellations and in general with the relations of subscriber to the corporation.

This then is a summary of the main features of a proposed surgical and obstetric plan sponsored by the North Dakota State Medical association to be offered to the people of North

Dakota in somewhat the following manner:

It is believed that at first it should be offered to employed groups and their families, groups of various sizes from four persons up. In general selling and collecting practices would be similar to those followed at present by the Blue Cross hospital plan. We believe that this plan can be offered at a rate between 80c to \$1.50 per month for an individual; \$1.30 to \$1.50 for man and wife; and \$2.00 to \$2.25 for a family. We are certain that there is a demand for such a contract, especially among the approximately 40,000 members of the Blue Cross hospital plan, and that in a short time there would be sufficient subscribers to make it self-supporting.

In operating medical service plans elsewhere, a considerable amount of cooperation with Blue Cross hospital associations has been found highly desirable. Even in Michigan, where the pioneer medical service was set up before the hospital association, they now have a working agreement with the Blue Cross, whereby the hospital people take care of certain selling and

collection matters

There are various possible combinations with the Blue Cross, or the plan could be handled by an entirely separate organization. It is our opinion that one of the following working arrangements should be made with the North Dakota Hospital

Service association:

1. The present Blue Cross organization will handle all sales and collections, receive, process, and pay all claims subject to the approval of our medical director or central professional committee. The executive director of the Blue Cross would also then be the executive director of the medical plan. The corporation would reimburse the Blue Cross an agreed amount

for these services, or

2. The Blue Cross would agree to attend to all sales and collection matters for a consideration, turning over all money

received to the corporation, who would receive, process, and pay all claims. A recent article in the AMA speaks approvingly of this method.

In our discussion of this proposal, we had favored the first

arrangement outlined.

The economics committee submits the following proposal to the house of delegates:

1. That a medical service corporation be organized in accordance with the provision of House Bill No. 187.

2. That the by-laws, fee schedule, physicians agreement and subscribers contract be substantially as outlined in this report.

3. That the corporation be authorized to either make a satisfactory arrangement with the Blue Cross or set up their own

business office as may be deemed best by the directors.

4. That nine directors be appointed, a majority of whom

should be physicians and the others prominent citizens.

5. That the house of delegates loan the coporation a sum of not less than \$5000 to cover expenses incurred in organization, said loan to be an obligation of the corporation to the house of delegates.

W. A. WRIGHT, M.D., Chairman.

#### By-Laws, North Dakota Physicians Service ARTICLE I-NAME

The name of this corporation is North Dakota Physicians Service.

ARTICLE II—PRINCIPAL OFFICE

The principal office and post office address of the corporation shall be Fargo, North Dakota.

ARTICLE III—SEAL

The Corporate Seal of the corporation shall have inscribed therein the name of the corporation and the words, "Incorporated 1945, North Dakota. ARTICLE IV-MEMBERSHIP OF THE CORPORATION

Section 1. The members of the corporation shall consist of those persons who shall from time to time be members of the house of delegates of the North Dakota Medical association.

Section 2. Each member of the corporation shall be entitled to one vote.

Section 3. The annual meeting of the members of the corporation for the election by ballot of directors and the transaction of such other business as shall properly come before the meeting shall be held at such place as may be stated in the call of the meeting, on a date coinciding with the date of the annual meeting of the medical society of North Dakota. election of the board of directors for the ensuing year shall be by majority vote of those members of the corporation present. The annual meeting of the board of directors shall immediately

follow the annual meeting of the corporation.

Section 4. Special meetings of the members shall be called by the secretary whenever the board of directors or the president shall so order, or upon written request of five (5) or more members, and such request shall state the purpose of such

Section 5. Notice of the annual meeting and of all special meetings of the members shall be given by the secretary by mailing or delivering to each member at least seven days before the date fixed for the meeting a notice stating the place, day, hour and purpose of the meeting.

Section 6. At every meeting of the members, there shall be represented in person or by proxy at least a majority of the members to constitute a quorum, but a smaller number may

adjourn from time to time.

ARTICLE V-BOARD OF DIRECTORS

Section 1. The affairs, properties and business of the corporation shall be managed by a board of nine directors, who may exercise all such powers of the corporation as are not by law or by these by laws required to be otherwise exercised. Directors need not be members of the corporation. A majority of the directors shall be at all times persons approved in writing by the house of delegates of the North Dakota medical association. A majority of the directors shall be physicians registered to practice medicine in the state of North Dakota and members of the North Dakota state medical association, and engaged in the active practice of medicine in the state, and the remainder may be persons who are or who agree to become subscribers to the non-profit physicians service to be operated by the corporation.

August, 1945 287

Section 2. The incorporators at their first meeting shall elect three directors to hold office until the first annual meeting, three to hold office until the second annual meeting and three to hold office until the third annual meeting. At each annual meeting the members of the corporation shall elect three directors to hold office for a term of three years and thereafter until their successors are elected.

Section 3. Any director may be removed from office by a majority of the members of the corporation, either by writing filed with the secretary of the corporation or by a vote passed

at a meeting of the said members.

Section 4. Vacancies in the board of directors occurring during the year shall be filled by a majority vote of those members of the corporation present at a meeting duly called for such purpose, provided, however, that at least 30 days prior thereto the said members shall submit to the president of the North Dakota state medical association the name of the person they propose to elect as a director.

Section 5. A majority of the directors in office for the time being shall constitute a quorum for the transaction of business, but a smaller number may adjourn from time to time.

Section 6. Regular meetings of the directors shall be held immediately after the adjournment of the annual meeting of the members of the corporation at the place of holding the annual meeting and at such regular times and places as the board like manner and shall be called by the secretary whenever the president or any three directors shall so request in writing, and three days' notice of such meetings shall be given to each director not joining in the request for such meetings. Directors may waive notice of a meeting by a writing signed before or after such meeting, and if present at any meeting shall be conclusively presumed to have received due notice thereof.

Section 7. The board of directors shall have power to purchase any property or rights and to enter into any contracts which they deem advantageous to the corporation, to fix the price to be paid by the corporation for such property, rights, or contracts, to borrow money, to issue bonds, debentures or other securities of the corporation and pledge to sell the same for such sums and at such prices as they may deem expedient; to adopt rules and regulations subject to the provisions of Article VI hereof and in general to exercise such other powers and to do all such other things as are not required by any other article of the by-laws to be exercised or done by any committee named therein. The board of directors shall have power to prepare, adopt, prescribe, approve and put into use contracts with subscribers, applications and contracts with participating physicians and surgeons, and such other forms of contracts and application forms as the corporation may require to transact its business; and such board of directors may, from time to time, alter, change, and amend such forms. The aforesaid powers shall be exercised by the board of directors subject to the provisions of the laws of North Dakota.

Section 8. Directors as such shall not receive any stated salary for their services, but by resolution of the board the actual expenses of the attendance, if any, may be allowed for attendance at board meetings. Nothing herein contained shall be construed to preclude a director from serving the corporation in

any other capacity and receiving remuneration for such service. Section 9. The board of directors may from time to time delegate any of its powers to committees or officers, attorneys or agents of the corporation, subject to such regulations as may be adopted by the board, provided, however, that no such delegation of its powers by the board of directors shall relieve the directors of the duties and obligations imposed upon them by the laws of the state of North Dakota or by these by-laws. ARTICLE VI-COMMITTEES

Section 1. There may be appointed such committees as the directors deem necessary and there shall be appointed a central

professional service committee as provided herein.

Section 2. There shall be a central professional service com-mittee composed of three directors appointed by the president of the corporation, of whom two, including the chairman, shall be physicians registered to practice in the state of North Da-kota. The chairman of the committee shall be designated by the president of the corporation.

Section 3. The central professional service committee shall have delegated to it control and supervision over the medical

aspects of all matters relating to (a) the standards of medical care to be furnished subscribers, (b) the extent and classification of benefits to be furnished subscribers, (c) the determination of income groups eligible to become subscribers, subject to approval of the board of directors, (d) the compensation fee schedule to be paid participating physicians and subject to the approval of the board of directors, (e) the admission and control of participating physicians and subject to the approval of the board of directors. All rules and regulations of the corporation relating to the foregoing shall be initiated by the central professional service committee, provided, however, that any rule or regulation relating to the determination of income groups eligible to become subscribers shall first be approved by the North Dakota state medical association and board of directors of the North Dakota physicians service. Whenever the committee shall initiate any change in a rule or regulation, it shall give at least 30 days' notice thereof to the members of the corporation.

Section 4. In the event of a complaint relative to the conduct of or services of a participating physician or of any controversy between a participating physician and a subscriber on whenever it has reason to believe that a participating physician has been guilty of a violation of the rules and regulations of the corporation, or unprofessional or unethical conduct or of conduct which is liable to endanger the interests of the corporation or of any of its subscribers, the committee may refer the matter for investigation to the county medical society or the district professional service committee within whose district the physician concerned has his principal office, which shall investigate the matter and shall then report the result of its investigation to the central professional service committee. If it appears to the central professional service commuttee that there is a reasonable cause to believe that the participating physician has been guilty of a violation of the rules and conduct which is liable to endanger the interests of the corporation or of any of its subscribers, it shall assign a date for a hearing giving the participating physician concerned at least seven days' notice thereof. If after the hearing at which the participating physician shall be given full opportunity to be heard, the said com-mittee shall find the said physician guilty, it shall terminate the agreement between said physician and the corporation, or it may take other disciplinary action which is proper and appro-priate in the circumstances, having first, however, reported to the board of directors of the North Dakota physicians service its findings and having obtained its approval of its proposed action.

Section 5. The central professional service committee shall report its acts and proceedings to the board of directors at such times as the board of directors shall require

ARTICLE VII-OFFICERS

Section 1 The officers of the corporation shall be a president, a treasurer, a secretary, one or more vice presidents, and such subordinate officers as the board of directors shall from time to time elect with such powers and duties and for such terms of office as the directors may designate. The president shall be chosen from among the directors of the corporation, but other officers need not be. The directors at their annual meeting in each year shall elect the aforesaid officers, provided, however, that the incorporators in their first meeting shall elect a treas-urer and secretary to hold office until the first annual meeting. All of the said officers shall hold their respective offices for one year and thereafter until their successors are elected and qualified, unless a different term shall be designated by the directors, subject, however, to removal at any time by vote of a majority of the board of directors, except that the officers appointed at the first meeting of the board of directors shall hold office until the first annual meeting and thereafter until their successors are the first annual meeting and thereafter until their successors are are elected and qualified Vacancies in any of the said offices shall be filled for the unexpired portion of the term by the board of directors. Officers may be paid such salary or compensation as the board of directors shall determine.

Section 2. The president shall be the chief executive officer of the corporation. He shall preside at all meetings of the corporation. He shall see that all orders and resolutions of the

board of directors are complied with

Section 3. The executive vice president may also be the medscal director of the corporation and may be a salaried officer, and shall be the chief administrative officer of the corporation

and carry out and perform the usual duties of such office, with such other powers and duties as may from time to time be

prescribed by the board.

Section 4. The treasurer shall have charge of the corporation's financial affairs, subject, however, to the supervision and control of the board of directors. He shall have the custody of all money and securities except his own bond, which shall be kept by the president. He shall deposit all money and valuables in the name and to the credit of the corporation in such depositories as shall be determined by the board of directors, subject, however, to the provisions of the laws of the state of North Dakota. He shall disburse the funds of the corporation as ordered by the board of directors. He shall keep or cause to be kept the corporation's accounts in suitable books wherein every transaction shall be accurately recorded and shall render to the president and directors at regular meetings of the board, or whenever they require it, an account of his transactions as the treasurer and of the financial condition of the corporation and shall discharge all other duties properly appertaining to his office or which may be attached thereto by the board of directors. He shall give bond for the faithful discharge of his duties in such form and in such sum as the board of directors may require.

Section 5. The secretary shall keep the records of all meetings of the corporation and shall give notice of all meetings required by these by-laws. He shall have the custody of the record books of the corporation and shall perform all duties usually incident to the office of secretary and such other duties as may be from time to time assigned by the board of directors to him.

Section 6. The executive vice president, treasurer, and such

other officers and employees of the corporation as may be designated by the board of directors shall be bonded at the expense of the corporation and in amounts determined from time to

#### time by the board of directors. ARTICLE VIII—DISTRICT COMMITTEES

Section 1. Each district medical society in the state of North Dakota may appoint a district professional service committee of not less than three (3) members of whom a majority shall be physicians engaged in active practice within the district and shall designate one of the members of the committee who is a physician as chairman.

Section 2. Each district professional service committee shall act in cooperation with and under the supervision of the central professional service committee. It shall make recommendations to the central professional service committee as to all matters

within its jurisdiction.

Section 3. Each district professional service committee shall, whenever any matter relating to the services or conduct of a participating physician or relating to a controversy between a participating physician and a subscriber is called to its attention by a complaint or otherwise, fully investigate the matter and report thereon to the central professional service committee.

ARTICLE IX-SUBSCRIBERS

Section I. A resident of the state of North Dakota may become an unlimited subscriber to the physicians service plan provided that his annual income does not exceed such amount as shall be fixed by the board of directors as provided in Article VI, Section 3, and provided further that he make application to become a subscriber as one of such a group as the board of directors may specify.

Section 2. A resident of the state of North Dakota may become a limited subscriber to the physicians service plan if his annual income exceeds such amount as shall be fixed by the board of directors on such terms and conditions as the board

of directors may by regulations prescribe.

Section 3. A subscriber shall be entitled to receive from a participating physician such medical services as are included in the subscriber's contract with the corporation, subject to whatever rules and regulations may be adopted by the board of directors relative thereto. The corporation shall have no supervision over the amount to be charged by a participating physician for services to a limited subscriber.

Section 4. Subscribers shall have free choice among participating physicians subject to the provisions of Article XI, Section 3, hereof, and to the rules and regulations adopted by the

board of directors.

Section 5. The board of directors shall have power to enter into arrangements and agreements with employers, societies, charitable or other organizations, and governmental agencies and authorities for the payment of part or all of the cost of medical care furnished to any persons who may be entitled to such care under the rules and regulations adopted by the board

ARTICLE X-PAYMENTS TO PHYSICIANS

There shall be included in the minutes of the meetings of the board of directors a record of the approval of payments to be made to participating physicians.

2. No payment to any participating physician shall be authorized by the board except in accordance with a plan of payments adopted by the central professional service committee and re-

corded in the minutes of a meeting.

3. The plan of payment so approved by the board shall be determined after consideration of the net earned subscription income that may be estimated to become available to the corporation during any given period for the payment of participating physicians' fees, after setting up legal reserves and reserves for expenses, contingencies, seasonal fluctuation in hospitalization of medical cases, and the like, and the determination of the board

with regard thereto shall be final and conclusive.

4. Whenever in any given period (the length of which shall from time to time be determined by the board) the amount of money determined as aforesaid anticipated to become available for payment of then current participating physicians' bills, does not suffice to pay the full amount thereof as established therefore in the then current schedule of benefits, payment to par-ticipating physicians may be paid proportionate to such amount in full payment for the eligible services rendered by such participating physician and the determination of the board with regard thereto shall be final and conclusive.

5. Payment to eligible non-participating physicians shall be on the basis provided therefore in the subscription contracts.

ARTICLE XI-PARTICIPATING PHYSICIANS

Section 1. Any physician, a member of the North Dakota state medical association, may become a participating physician on complying with the provisions of these by-laws and the rules and regulations of the corporation.

Section 2. A physician desiring to become a participating physician shall make written application in the form prescribed by the rules and regulations and shall before becoming entitled to act as a participating physician enter into a written agreement with the corporation in the form prescribed by the rules

and regulations.

Section 3. Subject to the code of ethics of the American Medical Association a participating physician shall have the right to accept or reject patients so far as subscribers are concerned and the right to discontinue treatment of any subscriber according to the code of ethics of the American Medical Association, provided, however, he shall not have the right to refuse to accept a subscriber as a patient or to discontinue treatment of a subscriber for the reason that he is a subscriber, and such refusal shall constitute grounds for the termination by the corporation of its agreement with the participating physician.

Section 4. A participating physician shall not request or accept from anyone whom he knows to be an unlimited subscriber any compensation for such services as such subscriber is entitled to under his contract with the corporation, except such charges, if any, as may be provided in the rules and regulations adopted by the board of directors and set forth in the subscriber's sub-

scription certificate.

ARTICLE XII—NON-PARTICIPATING PHYSICIANS Any physician, a member of the state medical association, who is not a participating physician of the North Dakota physicians service is considered a non-participating physician.

ARTICLE XIII—RULES AND REGULATIONS

The corporation shall formulate and adopt such rules and regulations as it may deem necessary or expedient for the proper administration of the medical service plan operated by the cor-

ARTICLE XIV-GENERAL

These by-laws may be amended or repealed by vote of twothirds (3/3) of the members of the corporation present or by proxy at any regular meeting or at a special meeting called for that purpose, of which due notice has been given to each mem-

per with a copy of the proposed amendments. Copies	of all	Gastro-enterostomy	150.00
mendments to the by-laws shall be filed with the comm	issioner	Gastro-enterostomy Peptic ulcer, perforated, closure Pyloric stenosis (Rammestedt's in infant) Intestines, anastomosis Intestines (small) resection	100.00
of insurance within 30 days after adoption.		Pyloric stenosis (Rammestedt's in infant)	100.00
Schedule of Surgical and Obstetrical Benefit	3	Intestines, anastomosis	150.00
Schedule of Surgical and Obstetrical Benefit General Surgery-10	-	Intestines (small) resection	150.00
(Operation; pre-post-operative hospital care)			
INFECTIONS AND TRAUMATA-11		Colotomy, palliative (no subsequent surgery) Appendectomy Diverticulum, intestinal Appendical, abscess, drainage Cholecystectomy	50 00
Abscesses and boils (superficial), incision	\$ 5.00	Appendectomy	100.00
Abscesses (deep) incision and drainage	20.00	Diverticulum, intestinal	100.00
Deen carried abrees	75.00	Appendiceal, abscess, drainage	100.00
Deep cervical abscess Carbuncle, operative (surgical procedure only) Tendon of hand, repair, one primary	25.00	Cholecystectomy	150.00
Candon of hand tenair one primary	50.00		
Each additional	10.00	ectomy	150.00
Each additional	100.00		
		Cholecystostomy	100 00
Grafts skin 15.00	and up	Cholecystoduodenostomy	125.00
Grafts, skin		Pancreas, drainage	125.00
		Cholecystostomy Cholecystoduodenostomy Pancreas, drainage Splenectomy	150 00
Cysts, complicated  Cysts, complicated  Cysts, bone, removal	20,00	ProctoLogy—22	
Pilonidal cyse or sinus	50.00	Hemorrhoidectomy, external external multiple	10.00
Cysts, bone, removal	75.00	external multiple	25.00
Bursa, excision of	50.00	remotrhoid, thrombosis, incision	2 00
TUMORS-13		Hemorrhoidectomy, internal and external	50.00
Tumors, external, removal	10.00	Fistulectomy	50 00
Tumors, complicated, removal	25.00	Fissurectomy Polypectomy (rectal)	15.00
Tumors, external, removal Tumors, external, removal Tumors, complicated, removal Tumors, vocal cord, removal—entite Epulis, removal Parotid tumor, removal Cancer of tongue (resection or removal) Same with neck dissection Cancer of lp (local operation) Same with neck dissection Same with neck dissection	75.00	Polypectomy (rectal)	25.00
Epulis, removal	15.00	Carcinoma of rectum, extirpation	150 00
Parotid tumor, removal	100.00	Sphincter, dilation	2.00
Cancer of tongue (resection or removal)	125.00	Perianal abscess, drainage	2 00
Same with neck dissection	150.00		100.00
Cancer of lip (local operation)	35.00	UROLOGY—23	
Same with neck dissection	125.00	Cystoscopy, observation (preliminary to surgery)	15.00
Biopsy-14		Cystoscopy, uteteral catheterization (preliminary to	
Biopsy, superficial	10.00	surgery)	25 00
Biopsy, bone, operative	15.00	Cystoscopy, operative (radium, stone, biopsy, etc., fulguration, foreign body)	
Biopsy, needle aspiration	5.00	fulguration, foreign body)	50.00
Biopsy, superficial Biopsy—14 Biopsy, superficial Biopsy, bone, operative Biopsy, heedle aspiration GLANDS—15		Circumcision, child	10 00
Glands, superficial, removal	10.00	ruiguration, cheign body) Circumcision, child Circumcision, adult Urethrotomy, external Urethrotomy, internal Prostatic abscess  Punch operation with suprapubic drainage	20.00
Dissection glands of neck (for cancer)	100.00	Urethrotomy, external	50 00
		Urethrotomy, internal	50.00
Thyroid, gland, simple ligation	75.00	Prostatic abscess	30.00
Lobectomy	100,00	The second secon	150 00
Thyroidectomy, subtotal (bilateral)	125.00		150.00
Ligation preliminary to thyroidectomy	25.00	Punch operation with suprapubic drainage	175 00
Thyroidectomy, two stage, subtotal (with or	150.00	Punch operation with suprapuble drainage	75.00
without ligation) Parathyroidectomy BREASTS—17	150.00	Perineoplasty Hydrocele, selerosing Hydrocele, radical operation Litholapaxy Vasectomy (when not preliminary to prostatectomy) Vesiculectomy	10.00
Parathyroidectomy Parathyroidectomy 17	170.00	Hudescale sadied operation	50.00
P Janines	20.00	Licholanave	75 00
Breast tumos removal	25.00	Vasectomy (when not preliminary to prostatectomy)	25 00
Bease andied comount	150.00	Vesiculectomy	100.00
Breast abscess, drainage Breast tumor, removal Breast, radical removal Breast, simple removal	75.00	Orchidopexy, one stage	50.00
Miscellaneous-18	,,,,,,	Two stage	75 00
	15.00	Orchidectomy, simple	50 00
Ligation, saphenous vein, high (and combined one leg	*****	With gland dissection	100.00
and subsequent injection)	37.50	Orchidopesy, one stage Two stage Orchidectomy, simple With gland dissection Cystotomy or cystostomy Cystectomy	50.00
Extensive bilateral varicose veins	75 00	Cystectomy	125 00
(Multiple ligations on same or successive days)		Plastic surgery in epispadias and hypospadias	170 00
injections		Plastic surgery of renal pelvis and ureter	100 00
Toe nail, ingrown (radical removal)	5.00	Bladder tumor, fulguration	25.00
Stone submaxillary or parotid duct (complicated)	25.00	Plastic surgery of renal petvis and ureter Bladder tumor, fulguration Bladder tumor, open removal Bladder tumor, diverticula, etc. (resection) Ureterolithotomy Nephrotomy Nephrotomy Nephrotomy Nephrocomy Nephrocomy Nephrocomy	/>.00
Removal of coccyx	25 00	Bladder tumor, diverticula, etc. (resection)	100 00
Special Surgery—19		NT	100.00
THORACIC SURGERY-20		Nephrotomy	100.00
Bronchoscopy, operative	75.00	Nephrostomy	150.00
		Nephropexy	100.00
Empyema, closed drainage	50.00	Prelatomy	100.00
Empyema, rib section	50.00	Excision and suture of fistula suprapubic	100.00
Pleuta, paracentesis (preimmary to surgery)  Empyema, closed drainage  Empyema, closed drainage  Empyema, rib section  Phenic nerve, crushing  Abdomen, paracentesis  Herniotomy, single, ventral, inguinal, or femoral  Herniotomy, bilateral, inguinal (same or successive days)	25 00	Pyelotomy Excision and suture of fistula, suprapubic Vaginal	150 00
Abdomen, paracentesis	10.00		
Herniotomy, single, ventral, inguinal, or femoral	110.00	Dearnancy delivery with complete care (after 10 mos.)	50 00
Herniotomy, bilateral, inguinal (same or successive days)	10.00	Miscarriage (curettage) after 10 months	25.00
		Cosarean section, vaginal	100 00
Esophageal diverticulum, one stage or two stage	100.00	Pregnancy, delivery with complete care (after 10 mos.) Miscarriage (curettage) after 10 months Cesarean section, vaginal Cesarean section, abdominal	100.00
Gastrotomy	150.00		
Gastrotomy Gastric ulcer, excision	100.00	Therapeutic abortion	50.00
MUSICIO DICCI, CANDIVII		•	

GYNECOLOGY-25		Laminectomy, intervertebral disc	
Bartholin's gland, incision	5.00	Lumbar puncture	
Bartholin's gland, excision	25.00	Nerve anastomosis (individual consideration)	
Urethral caruncle, removal		Section, anterior scalenus (scalenue syndrome)	
Labial tumors and cysts, removal		Section, 5th nerve (tri-geminal neuralgia)	
Fistula, recto-vaginal	100.00	Section, 8th nerve (Meniere's syndrome) Skull defect, plastic operation	
Fistula, vesico-vaginal		Splanchnicectomy	
Cul-de-sac, drainage		Trephine, subdural hematoma	
Dilatation and curettage		Ventriculogram—introduction of material (x-ray extra)	
Uterine polyp, removal		-	
Trachelorrhaphy	35.00	Bone, Joint, Tendon Surgery-30	50.00
Cervix, amputation		Skull	
Oophorectomy (bilateral) or resection of ovaries	100.00	Nose Maxilla	
Hysterectomy, vaginal	150.00	Body of vertebra—closed reduction	
Supravaginal hysterectomy, abdominal	150.00	Ribs	
Supravaginal hysterectomy, abdominal (complicated	150.00	Clavicle	
with gynecologic repair work)		Scapula	
Panhysterectomy for cancerMyomectomy		Humerus	50.00
Salpingectomy		Olecranon	
Salpingeoophorectomy (bilateral)		Radius and ulna, shaft	60.00
Cystocele	50.00	Radius, shaft only	
Rectocele		Cole's fracture	
Combined cervical and vaginal repair (no procendetia) _	75.00	Ulna, shaft only Fracture, head of radius	30.00
Prolapse operations (interposition, Manchester)	100.00	Metacarpals and carpals	35.00
Ophthalmology—26		Scaphoid, closed	
Foreign body, interior eye, operative removal	100.00	Finger	10.00
Conjunctival suture		Each extra finger	
Conjunctival flap for corneal ulcer, etc.		Pelvis	70.00
Chalazion (excision)		Femur	100.00
Lachrymal sac, removal		Tibia, shaft	50.00
Entropion or ectropion		Tibia, internal malleolus	
Symblepharon, releasePterygium		Fibula, shaft	25.00
Corneal ulcer, cauterization		Tibia and fibula (including Pott's fracture and trimalleolar)	75.00
Prosis (single)	50.00	Metatarsal bone	
Strabismus, one stage		Tarsal bone, excluding os calcis and astragalus	
Strabismus, two or more stages	75.00	Os calcis and subastragalus, each	50,00
Cataract, needling		Great toe	10.00
Cataract, removal		For fractures requiring an open operation—(32)—the ma	
Iridectomy and conjunctival flap		amount of reiumbursement will be 30% of the amount	
Glaucoma, filtrating operation 50.0		above for corresponding simple fractures up to \$150.0	JU.
Evisceration		Compound Fractures—33	
Tumor, exenteration of orbit		All compound fractures are allowed 30% more than t	he fees
Detachment of retina, surgical treatment	150.00	of simple fractures up to \$150.00.	
Suture of skin of eyelids	10.00	Fresh, Uncomplicated Dislocations—34	
Otology-27		•	,
Paracentesis tympani (hospital)	10.00	Spine Spine	10.00
Mastoidectomy, acute	75.00	Maxilla, inferior	
Mastoidectomy, radical		Clavicle	
Nose and Throat—28		Shoulder	
Tumor vocal cord	75.00	Elbow	
Antrum, Caldwell-Luc, window	35.00	Shoulder and elbow, requiring open operation	50.00
Ethmoidectomy, unilateral		Wrist	15.00
Ethmoidectomy, bilateral		Metacarpal bone, one	15.00
Frontal sinus, internasal		Each extra metacarpal	5.00
Frontal sinus, radical Submucous resection		Metacarpal bone requiring open operation—charge is	
Tonsillectomy and adenoidectomy		doubled. Carpal bone, one	25.00
Abscess, peritonsillar, incision		Carpal bone, one or more requiring open operation.	
Larynx, intubation	15.00	Finger, one	5.00
Larynx, polyp, tumor, removal	50.00	Each extra finger, additional	5.00
Laryngectomy	100.00	Finger, one; requiring open operation	10.00
Tracheotomy	35.00	Each additional finger	10.00
Esophagoscopy or bronchoscopy for diagnosis and	25.00	Hip	45.00
treatment Esophagoscopy, foreign bodies, esophagus, trachea, lung	27,00 100 00	Hip, requiring open operation	90.00 25.00
	100.00	KneeKnee, requiring open operation	50.00
Neuro-Surgery—29 Chordotomy, bilateral	75 00	Tarsal' bone	25.00
Chordotomy, unilateral	75.00	Tarsal bones requiring open operation, double the charge.	
Craniotomy for tumor, abscess, depressed fracture		Metatarsal bone, one	15.00
Decompression, subtemporal	100.00	Each additional bone	5.00
Encephalogram-introduction of material (x-ray extra)	15,00	Toe, one	5.00 5.00
Laminectomy, cord tumor	150.00	Each additional toe	7.00

Tenotomy		\$ 25.0
Bone graft(Inc	hvidual e	onsideration
Acute osteomyelitis	"	**
Chronic osteomyelitis, sequestrum removal	,,	
Arthrodesis of knee, hip, shoulder or elbow	,,	,,
Arthroplasty, any major joint	**	"
Amputations—36		
Shoulder	**********	100.0
Upper arm		50.0
Forearm		50.0
Hand		500

ORTHOPEDIC-35

 Finger
 25.00

 Each additional finger
 10.00

 Hip
 100.00

 Thigh
 65.00

 Leg
 75.00

 Toe
 25.00

 Each additional toe
 10.00

 Foot
 5.00

BLOOD TRANSFUSION—37
Blood transfusion, first (not including cost of blood; when given by licensed physician personally, during hospitalization):

For major surgery 10.00
Subsequent 5.00
Maximum 25.00

RULES AND REGULATIONS CONCERNING THE SCHEDULE OF SURGICAL AND OBSTETRICAL BENEFITS

Compensation on the fee schedule with the agreement of apportionment by the participating physicians is the primary basis of a pre-payment medical plan. The endeavor of the corporation will be always to meet the scheduled payments in full. However, in a particular accounting period, if the available funds are inadequate, then the payment for each service performed by a nhysician and due the ohysician will be lessened.

formed by a physician and due the physician will be lessened. The schedule of benefit is based on these few important facts: first, that the subscriber in the lower income classes should be carried as nearly through the whole hospitalized case as possible; second, that the specific allowance to physicians are fair, assuming that the difficult cases and the easier cases will balance fairly with each other; third, that the professional experience of collection for a large number of accounts is replaced by the payment from the corporation for 100 per cent of the cases; and fourth, that many of the cases formerly medically indigent, will become self-supporting by group enrollment for medical service at a low subscription fee.

1. Subscribers in the under-uncome group (individuals with an income below \$2400 and families with a total income below \$3000) receive unlimited or service benefits, as contrasted with cash indemnity benefits. Participating physicians agree to provide specified services to this group without extra charge other than contractually provided. Subscribers in the over-income group (individuals with incomes above \$2400 and families with incomes above \$3000) receive limited or indemnity benefits. The individual's benefits are paid directly by the corporation to the participating physician of the amount specified for a given service. Such payment stands as a credit toward the payment of the full charge which the participating physician is free to make in the same manner as he would with a non-subscriber patient. The latter patients are liable directly to the physician for any remaining balances after the corporation pays the in-demnity.

2. In cases of fractures requiring an open reduction, the amount of reimbutsement will be 30 per cent more than the amount shown in the fee schedule, and in cases of compound fractures, the amount of reimbutsement will be 30 per cent more than the amount shown in the fee schedule for corresponding simple fractures but not to exceed \$150.00, but the limit of care in such cases if in excess of 21 days, is extended until the patient is discharged from the physician's care.

3. Two unrelated operations performed during a single hospital admission shall be paid for on the basis of full payment for that service having the larger compensation and reduced payment for the service with the smaller compensation. If the smaller compensation is for a major operation, two-thirds (%) credit shall be allowed; if for a minor operation, one-half (%) credit shall be allowed. This also relates to combined procedures on related organs (t. e., intestine), with the total not to exceed \$150.00 in those combinations which are not otherwise specifically provided for in the schedule. When two untellated operations are performed by different surgeons during a single hospital admission the subscriber or covered dependent shall receive full credit for each operation except if the total of the two exceeds \$150.00—then credit shall be prorated on the basis of the fee schedule in effect. Unlimited subscribers may not be charged extra by the participating physician or physicians if unrelated operations are performed by one or more physicians during a single hospital admission and the combination of the compensation amounts exceeds \$150.00 except as limited by IV, 4, of the subscriber contract.

When a series of related surgical procedures are performed at the same time, or different surgical procedures artuing from the same medical cause are performed during the same or successive hospital admissions, no benefits in excess of one hundred fifty dollars (\$15000) will be paid during any one subscription year on behalf of either limited or unlimited subscribers or their covered dependents.

4. Exceptions to regulation 3 are with regard to bilateral herniae, which are specifically provided for. Incidental appendectomy performed in the course of any other operation, is allowed no extra compensation

5. Waiting periods are established for two types of services. The waiting period is that time between the effective date of a subscription agreement, and the time when the subscriber is eligible for benefits. For obstetrical conditions including normal delivery, curettage, and treatment of miscarriage, laparotomy for extra-uterine pregnancy and cesarean section, there is a waiting period of ten (10) months. For tonsillectomy or adenoidectomies there is a waiting period of six (6) months

6. Services of other than the operating surgeon in major sur-

6. Services of other than the operating surgeon in major surgical cases (975.00 or over) are atranged for on the following basis: (a) Special endoscopic examinations are compensable according to the fee schedule when such examinations are made by a participating physician on a hospitalized patient immediately preceding surgery and when directly related to the surgical procedure (excluding proctoscopy and auriscopy by the operating surgeon). (b) Obstetrical services when provided by a participating physician under the terms of the waiting period in the subscriber's contract.

7. Services rendered by non-participating physicians of North Dakota to a subscriber shall be paid not more than three-fourths (1/4) of the amount that would have been paid to a participating physician. Non-participating physicians outside of North Dakota will be paid at the same rate as participating physicians. Non-participating physicians may make an extra charge over and above the amount received from the North Dakota physicians service.

8. Adjustment of all disputed claims shall be made through

 Adjustment of all disputed claims shall be made through the corporation offices and through the mediation of officers and agents of the corporation, and the central and local professional service committees.

9. All cases should be reported within thirty (30) days after completion of treatment. Cases reported later than sixty (60) days after services are completed need not be compensated by the corporation except at its discretion. This is necessary to prevent disruption of the corporation's financial planning. Late reported cases shall be penalized at the rate of two per cent simple discount per month to help defray administrative costs. Accounts will be settled within the month following the date of receipt by the corporation of the discharge report.

10. The subscriber's contract does not cover injuries or diseases for which care, or treatment or compensation is provided under any workmen's compensation, or other legislation in force at present or subsequently enacted. Double liability is not accepted as set forth in Article XIV of the subscriber's contract.

11. The subscriber's contract does not provide for distinctly medical (non-operative) treatment in the hospital; it does not provide for treatment of nonoperable ronditions by a surgeon or orthopedist or obstettician in the hospital. All such matters are the private responsibility of the patient toward the participating physician involved.

12. The subscriber's contract provides for "surgical and obstetrical services" (see 6 above), with the surgical services defined as "any operative and cutting procedure for the treatment of disease or injury, and the treatment of fractures and dis-

#### Application of and Agreement with PARTICIPATING PHYSICIANS

I, the undersigned, a physician licensed to practice medicine in the state of North Dakota, pursuant to \_ hereby make application to become a participating physician of the North Dakota Physicians Service, a corporation organized under the provisions of \_\_\_\_\_ of the statutes and the acts supplementary thereto and amendatory thereof (hereinafter referred to as the corporation), do hereby agree to furnish to subscribers and covered dependents, medical services in accordance with and subject to the provisions of contracts made between the corporation and the subscribers, which are now in effect or may be in effect during the term of this contract.

I. The corporation will compensate the participating physician in accordance with the fee schedule now on file with the corporation or as subsequently modified or amended for such services furnished to subscribers or their covered dependents. The said fee schedule and any modifications or amendments thereof are made a part of this agreement. (Copies are available at any time from the corporation.) The participating physician agrees to accept as full compensation for all such services such payments as are received from the corporation under the terms hereof, except in the case of those persons who are en-titled only to limited indemnification, in which case the physician may make his customary charge to his patient for such services, crediting against such charge the amount set forth for such services in the fee schedule in effect at the time the services are rendered.

II. In the event that the amount available in any accounting period for distribution to participating physicians, after paying or making provision for all other expenses of the corporation shall be insufficient to pay all participating physicians in full, then the amount which the board of directors decides is available for distribution shall be paid to all participating physicians on a proportionate basis. The participating physician may subsequently receive an additional amount or amounts if the board of directors decides that sufficient funds are available and votes to make such additional payment, but in no case shall the total payment exceed the regular fee schedule in effect at the time the services are rendered.

III. The participating physician agrees to report discharge of subscriber participants, on a form furnished by this corporation, within 30 days from the date of discharge. Cases not reported as above required need not be compensated for by the corporation except at its discretion, but the subscriber or covered dependent concerned shall be in no way penalized because of the failure of the corporation to compensate said physician. Any late reported cases accepted by the corporation for cause shall be discounted at the rate of 2 per cent simple discount per month to help defray administrative costs. The participating physician shall, upon request, render to the corporation a statement of services rendered. The corporation, when making payment to the participating physician, shall render to him an itemized voucher.

IV. This contract shall continue in effect until terminated by the participating physician on the last day of any calendar month after he has been affiliated therewith for a period of one year, by delivering to the service association written notice of his intention so to do 90 days before such withdrawal shall become effective. Such withdrawing physician shall remain obligated to render medical service pursuant to the subscribers' contracts outstanding at the effective date of such withdrawal. However, the contract may be terminated by the corporation forthwith for any cause as set forth in article VI, section 4 of the by-laws of the corporation.

V. In the event of termination of the contract the physician shall be entitled to be paid for all services rendered to the date of termination, provided, however, that if the contract shall be terminated by the physician for any other cause than that he is no longer practicing in North Dakota, he shall be paid at a future date as the board of directors decide such amounts that have resulted from any previous failure to pay the full amount set forth in the fee schedule as provided in paragraph III above.

VI. The participating physician agrees to be bound by the articles of incorporation and by-laws of the corporation and he does hereby acknowledge having received from the corporation copies thereof. The participating physician also agrees to abide by any rules and regulations from time to time as are adopted by the corporation.

Signature..... Accepted, North Dakota Physicians Service.

I. Definitions

(a) Applicant subscriber. The term "applicant subscriber" shall mean the employed individual named on the application with whom the participating physicians have entered into this

surgical and obstetrical service contract.
(b) Covered dependent. The term "covered dependent," as used herein, shall mean wife, unmarried child under 19 years of age, or dependent husband of applicant subscriber residing with the applicant subscriber. No applicant subscriber is eligible to be a dependent on any other applicant subscriber's contract, nor may any person be a dependent on more than one

applicant subscriber's contract.
(c) Subscriber. The applicant subscriber and each person named on the association's records as a dependent shall be a

subscriber under this contract.

(d) Surgical and obstetrical service contract. The term "surgical and obstetrical service contract" shall mean the contract entered into between the participating physicians and the applicant subscriber, and shall consist of the application, including any supplemental application, the identification card and the surgical and obstetrical service contract issued by the service association, as agent of the participating physicians, evidencing

the acceptance of the application.
(e) Participating physicians. The term "participating physician" shall mean any physician who has entered into a contract with the service association to furnish surgical and other

Date....

(f) Non-participating physician. Any physician, a member of the state medical association, is considered a non-participating physician.

(g) Group leader. The term "group leader" means any individual, association, or corporation which, as agent for certain subscribers, has agreed with the subscriber to collect the charges payable to the subscriber and to transmit the same to this corporation. Such remitting agent shall not be, nor be construed

to be the agent of this service association.
(h) Surgical service. The term "surgical service" shall mean any operative and cutting procedure for the treatment of disease and injuries, and the treatment of fractures and dislocations.

(i) Surgical and obstetrical services. The term "surgical and obstetrical services" shall mean services rendered by a participating physician to a subscriber or covered dependent when a bed patient is in an approved hospital, home or office, as fol-

lows: surgical services, and obstetrical services.

(j) Annual income. The term "annual income" shall mean the combined income of subscriber, spouse, and other dependents covered under the contract for a yearly average during a three year period preceding application for benefits hereunder.

(k) Unlimited subscriber. The term "unlimited subscriber" shall mean any subscriber whose annual income is less than the amounts specified by the service association, and on file with the commissioner of insurance.

(1) Limited subscriber. The term "limited subscriber" shall

mean any subscriber whose annual income is more than the amounts specified (j) above.

(m) Approved hospital. The term "approved hospital" shall mean a hospital that has been approved by the American College of Surgeons, or by the American Medical Association, or by the county, or component medical societies of this state.

(n) Duration. Unless terminated as herein provided, the duration of each contract herein referred to as the contract year shall be the period of twelve months from its effective date

and from year to year thereafter.
(o) Obstetrics. "Obstetrics" means the treatment of conditions pertaining to pregnancy such as actual delivery, miscarriage, cesarean section, ectopic pregnancy, and therapeutic

abortion.

#### II. BENEFITS TO SUBSCRIBERS

Unlimited Subscribers:

This service association, through participating physicians, will provide the unlimited subscribers and covered dependents as defined and limited herein:

1. Surgical services as hereinbefore defined by a participating physician in an "approved hospital," doctor's office and patient's home, except as limited by IV, d.

2. Obstetrics, meaning the treatment of conditions pertaining to pregnancy.

#### III. LIMITED SUBSCRIBERS

#### Limited Subscribers:

The service association shall pay the participating physician in accordance with the fee schedule in effect at the time the services are rendered for the services specified in paragraphs (a) and (b) of this section. Such schedule amount shall be a credit toward the full charge to the subscriber, the balance of which, if any, shall be the responsibility of the subscriber to the participating physician.

(a) Surgical services as hereinbefore defined by a participating physician in an "approved hospital, doctor's office and patient's

home," except as limited by IV, d

b. Obstetrics, meaning the treatment of conditions pertaining

to pregnancy.

- (c) When two unrelated operations are performed by one surgeon during a single hospital admission, the subscriber or covered dependent shall receive full credit for that service having the larger compensation and reduced payment for the service having the smaller compensation. If the smaller compensation is for a major operation, 3/3 credit shall be allowed. If a
- minor operation, 1/2 credit shall be allowed. (See IV, d.)
  (d) The schedule of indemnification for benefits under this contract shall at all times be on file in the office of the corporation and in the office of the commissioner of insurance, and copies shall be provided to subscribers on written request. This schedule shall be subject to change without notice after any change has been approved by the commissioner of insurance.

#### IV. CONDITIONS UNDER WHICH SERVICE SHALL BE

PROVIDED OR INDEMNIFICATION SHALL BE PAID

The aforementioned services for both the unlimited and limited subscribers and covered dependents, shall be rendered under the terms and conditions of the following:

(a) The applicant subscriber or covered dependent may ap-

ply to any participating physician for service.

(b) The service association agrees to make payment direct to the physician performing the services, and acceptance of payment from the association by such physician shall be a discharge of the obligation of the association to the applicant subscriber or covered dependent for any services rendered or for any indemnity due under this contract.

When a series of related surgical procedures are performed at the same time, or different surgical procedures arising from the same medical cause are performed during the same or successive hospital admissions, no benefits in excess of \$150.00

will be furnished during any one subscriber's year, except as otherwise provided in the fee schedule.

(d) If the subscriber claims the benefits to which an unlimsted subscriber is entitled under the terms of this contract, he shall furnish the participating physician and/or the association all information which the participating physician or the association may request relative to his income and that of his covered dependents. If the subscriber refuses or fails to give such information when requested or he gives false or misleading information, his subscriber's contract may be cancelled and he shall be responsible to the participating physician for the fee charged to him.

#### V. SERVICES EXCLUDED

The following services are not included as benefits under this physicians service contract:

(a) Hospital services, nursing service, medicines, drugs, anesthesia, operating room, x-rays, laboratory examinations, nor for any services whatever to which the applicant subscriber or covered dependents are entitled under any non-profit hospital service plan contract under which the hospital admission occur.

(b) Services which have been rendered to an applicant subscriber or covered dependent under workmen's compensation

laws of any state, the employers' compensation or liability acts under the federal statutes or where care is rendered without cost under any government agency, or crippled children's program, or by similar allied agencies.

Diseases or injuries not ordinarily treated in an ap-(c)

proved hospital.

(d) Tuberculosis, mental disorders and nervous disorders. (e) Tonsillectomies, adenoidectomies during the first six

months of membership.

(f) Obstetrics or any condition arising from current pregnancy or childbirth until this contract has been in effect for ten (10) consecutive months. No obstetrical services are available under the individual contract.

(g) Plastic surgery except for non-cosmetic purposes

(h) This contract does not provide benefits of a distinctly medical service (non-operative) in a hospital; it does not provide benefits for services in a hospital of a non-operative character not included under "surgical and other services" as hereinbefore defined (sec. I, g) by a surgeon or obstetrician. Services performed in the home or the doctor's office are at the discretion of the attending physician.

(1) This service association does not provide payment for service of any hospital resident, physician, or intern

#### VI. CHOICE OF PHYSICIAN AND PATIENT

Choice of physician may be made by applicant subscriber or covered dependent from among the then current participating physicians of the service association, and like cohice is reserved also to such physicians to accept patients from among applicant subscribers and covered dependents in accordance with the custom and practice now prevailing in the private practice of medicine. Nothing contained herein shall interfere with the ordinary relationship that exists in the community between a physician and his patient. This service association does not undertake to supply a physician for any applicant subscriber or his covered dependents.

#### VII SERVICES BY NON-PARTICIPATING PHYSICIANS

The service association agrees to indemnify the applicant subscriber or covered dependent for the cost of surgical or other services rendered by a physician other than a participating physician only in case of emergency. For such services by a nonparticipating physician practicing and resident within the state of North Dakota, the service association shall pay not over three-fourths (3/4) of the amount which a participating physician would receive for such services, and subject to the limitations and exclusions of the subscriber's contract. For such services by a physician practicing and living outside of the state of North Dakota, the service association shall pay the non-participating physician at the same rate as paid to a participating physician hereunder. The service association has no authority to limit a non-participating physician as to his total charge for surgical and other services. "Emergency" as used herein shall mean an accident or illness of such character that the safety or recovery of the subscriber would be jeopardized unless treated by a non-participating physician

#### VIII. IDENTIFICATION

At the time surgical or other services are requested, the applicant subscriber or covered dependent shall inform the participating physician that he is an applicant subscriber or covered dependent.

#### IX. CORPORATION NOT LIABLE FOR INTURIES

The service association shall not be liable to applicant subscribers and covered dependents for injuries resulting from negligence, misfeasance, malfeasance, nonfeasance, or malpractice on the part of any officer or employee or on the part of any participating physician or non-participating physician in the course of rendering benefits and services to applicant subscribers or covered dependents.

#### X CANCELLATION AND RENEWALS

- (a) The amount of the annual charges for a subscriber shall be determined by the board of directors of the North Dakota physicians service from time to time.
- (b) The amount of the annual charges as above determined, and the time or times and manner of payment thereof shall be as set forth in the subscription application or supplemental application and as specified thereon by the applicant subscriber.

(c) This service contract shall be terminated and cancelled without notice if the charge therefor is not paid within 30 days after the same becomes due and payable. Re-enrollment of an applicant subscriber whose contract has become terminated and cancelled for any reason may be applied for subject to the consent and approval of the service association upon the same basis as new applicants, except that a fee of \$1.00 for such re-enrollment shall be paid by the applicant subscriber.

(d) Subscription charges and the provisions of the service contract may be changed at any time and from time to time by the board of directors of the corporation by giving written notice thereof to the subscribers, at least 15 days prior to the date on which such change shall take effect. Any such change shall not affect the rights of any applicant subscriber or covered dependent who at the time of such change is receiving surgical or other services provided herein to the completion thereof un-

der the terms of the subscriber's contract.

(e) Any such agreement may be terminated by the corporation by giving 15 days prior notice to the subscribers. Any such termination shall not affect the right of an applicant subscriber or covered dependent then receiving surgical or other services to the completion of such services under the terms of the subscriber's contract. In the event of such termination, this corporation shall refund to the subscriber the subscriber charges, if any, which shall have been paid by the subscriber for a period beyond the date of such termination. Payments of such refund shall constitute a full and final discharge of all obligations of the corporation under this subscriber's contract.

(f) Surgical and obstetrical service contract may be terminated by the subscriber on the next monthly effective date by giving 15 days prior written notice to this corporation. In the event of any such termination, this corporation shall not refund to the subscriber the subscription charges, if any, which shall have been paid by the subscriber for a period beyond the date of termination, unless such period is in excess of 30 days. Any such refund shall be pro-tated according to the period for which coverage has been provided.

(g) An applicant subscriber who leaves the employ where he has participated in the plan may continue his membership until the end of his contract year whether he is re-employed or not by making remittance, subject to the conditions of this service contract, directly to the association's office. To each such subscriber, payments must be made on a semi-annual basis.

(h) An applicant subscriber who becomes a pensioner (of any pension plan maintained by his employer) while this contract is in effect may renew his contract on each renewal date, subject to the consent and approval of the corporation at such charges as are designated.

#### XI. GENERAL REGULATIONS

(a) Benefits under this contract are personal to the applicant subscriber or covered dependents and are in no way assignable, and the contract shall be forfeited without refund if either attempts to transfer it or attempts to aid any other person in obtaining benefits under it in a fraudulent manner.

(b) No person or persons other than an applicant subscriber or his dependent recorded in the office of the association is

entitled to any benefits under this contract.

(c) The applicant subscriber, on the renewal of his subscriber's contract, shall have the privilege of withdrawing the name or names of any dependents or of adding the name or names of any qualified individual or individuals as dependents, upon the execution by the applicant subscriber of a supplemental application on forms furnished by the service association 30 days prior to the renewal date, except that the name of a newly born child or a newly married spouse may be added as a dependent by the applicant subscriber during the contract year, if added within 30 days after the birth of the newly born child or the marriage of the newly married spouse and by paying the additional charges therefor.

(d) If any child of the applicant subscriber shall marry or attain his nineteenth birthday, this contract shall terminate as to such child on the renewal date of this contract next suc-

ceeding

#### XII. Notice

Any notice given hereunder shall be sufficient, if given by this corporation to the subscriber, when mailed, first-class postage prepaid, to the subscriber at the address as it appears on the records of this corporation, and if given by the subscriber, when mailed to this corporation at its principal office in Fargo, North Dakota, postage prepaid.

XIII. Assignment of Records

The applicant subscriber, on behalf of himself and each covered dependent, agrees that any physician who has made a diagnosis or treated him or covered dependent, for any condition for which service or indemnification is sought under this contract, or any nurse or hospital in possession of any information, records or copies of records relating to such diagnosis or treatment, may furnish and is authorized to furnish to this corporation at any time upon its request, to such extent as may be lawful, any and all information and records and copies of records relating to the diagnosis, treatment or service provided to the applicant subscriber or covered dependent before or after the execution of this contract, it being understood that this corporation shall be in the same position with regard to the aforesaid information and records as if this corporation were itself providing said surgical or other services. The corporation agrees that such information and reports relative to diagnosis and services given applicant subscriber or covered dependent shall remain confidential.

XIV. SUBROGATION

The applicant subscriber, on behalf of himself and each covered dependent under this physicians service contract, in consideration of the issuance of said contract, agrees that whenever he or his covered dependents shall have received benefits under the terms of this contract for injuries resulting from accident or from the negligent or unlawful act of third persons, the cor-poration, to the extent of such benefits furnished, shall be subrogated to the applicant subscriber's or covered dependent's rights to recover for loss or damage resulting from such injury to an amount equal to the value of the care and services furnished by this corporation to the applicant subscriber or covered dependent, and the treatment of such injuries, according to the rates and charges fixed by the corporation for participating physicians, which amount shall be paid to the corporation by the third person liable for the injury to the applicant subscriber or covered dependent, or by the applicant subscriber or covered dependent, if the applicant subscriber or covered dependent shall have collected any money for damages or compensation for injuries sustained as aforesaid.

#### Maternal and Child Welfare

Your committee on maternal and child welfare held a meeting on September 24, 1944, which was attended by the following members: Drs. Paul Freise, J. F. Hanna, John Graham, Lawrence G. Pray, M. D. Westley and John H. Moore. In addition, Dr. George F. Campana, state health officer, and Dr. F. G. Gunlaugson, director, division of maternal and child hygiene for the state department of health, were present and rendered invaluable assistance to the committee in its deliberations.

Dr. Gunlaugson was elected acting secretary of the committee. He presented numerous technical details regarding the EMIC program on which the Division of Maternal and Child Hygiene requested the advice of the committee. Since this EMIC plan covered some twenty pages and since your committee could detect no basic change in the philosophy of the Children's Bureau regarding the operation of the plan, no attempt will be made in this report to go into the changes that were recommended by the committee. The plan is on file in the division of maternal and child hygiene of the North Dakota state health department, where its technical details may be studied by any inter-ested physician. It is significant to note, however, that your program is "for the duration of the war and not to exceed six months thereafter." We agreed with the state health department, that fees for surgery in connection with the EMIC program, but fees that were not included in the EMIC program as originally outlined, should be paid at the rate provided by the state public welfare board fee schedule and approved by the committee on medical economics of the North Dakota state medical association; but we also noted that a regulation of the children's bureau provides that no fee in excess of \$50.00 can be paid for surgery.

You will recall that our report for 1943 showed, graphically. that obstetric hemorrhage was the leading cause of maternal deaths in North Dakota that year and that we made certain

specific recommendations regarding its prevention and treatment. Through the courtesy of Mary Agnes Gordon, statistician for the division of vital statistics of the North Dakota state health department, we are happy to report that the provisional maternal death rate for 1944, which includes all 1944 maternal deaths, reported through February 1945, is 18 per 10,000 live bitths. There were fewer deaths from hemotrhage than in 1943, but there is still room for improvement .

It is too early to tell what effect the plasma bank program of the North Dakota state health department will have on deaths from obstetric hemorrhage but the following figures, supplied by the director of the division of laboratories, are of interest: since the distribution of plasma was started by the Grand Forks laboratory in the fall of 1944 and including April 1, 1945, North Dakota-made plasma has been used on 220 patients. Thirty-five of these were obstetric patients. Specific mention was made of ectopic pregnancy, placenta previa, postpartum hemorrhage, toxemia of pregnancy, difficult labor and hemorrhage from spontaneous abortion as cases in which the plasma had been used for obstetric indications, and if we include three patients who had had cesarean section and were listed under postoperative shock, the total is 38 obstettic patients to April 1, 1945, who have had the benefit of plasma. Your committee endorsed the blood plasma program of the North Dakota state department of health.

Considerable time was devoted to standards for prepartum care, and it was agreed that these should include: (1) Wassermann test, (2) hemoglobin determination, (3) physical examination (on initial visit to physician) with followup examination every month until the seventh month, and at least every two weeks thereafter until delivery, and (4) complete blood count and Rh factor determination in cases where transfusion was found necessary. It was also pointed out that the Rh factor should be determined where there have been previous neonatal deaths.

A discussion of future postgraduate courses for physicians in obstetrics and pediatrics was held and it was the recommendation of your committee that separate courses in obstetrics and pediatrics be held as soon as suitable arrangements can be made and that these courses emphasize, in obstetrics: (1) obstetric hemorrhage, (2) the prevention of premature labor, and (3) anesthesia, including the barbiturates. In pediatrics, your com-mittee recommended emphasis on (1) care of the premature infant, and (2) care of the new-born during the neonatal period.

A sub-committee was appointed to assist with the classification of maternal and infant deaths after the division of maternal and child hygiene has gathered the anonymous case histories of these cases.

Infant mortality rates are showing improvement in North Dakota The provisional rate for 1944 is 35 per 1,000 live births.

Recent outbreaks of diphtheria in North Dakota again focus attention upon the fact that immunization from this preventable disease is far from adequate. By the same token, immunization against smallpox and pertussis needs to be emphasized. We urge that an immunization program for infants under one year of life be encouraged by our North Dakota physicians along the lines recommended by modern pediatric practice and that physicians in private practice carry out this immunization program wherever and whenever possible.

From the foregoing, it must be evident that your committee has had the closest cooperation from the North Dakota state health department. There are many difficult problems in the field of maternal and child welfare which remain to be solved. In these crowded days, it is especially fortunate that we have a state health officer, Dr. George F. Campana, who understands the perplexing nature of those problems and who works so wholeheartedly with the medical profession in their attempted

#### JOHN H. MOORE, M.D., Chairman. Crippled Children

No problems have arisen in connection with the crippled children program of the state during the past year. At least, nothing has been brought to the attention of this committee and there have been no committee meetings.

A. R. SORENSON, M.D., Chairman.

#### Venereal Diseases

A meeting of the committee was held in December 1944 at Jamestown, attended by four members of the committee and Dr. G. F. Campana, state health officer. The treatment of syphilis was discussed and no changes in the present regulation or control were advised—it being felt that this should be postponed until present opinions about the newer treatments have crystalized.

In the treatment of gonorrhea, it was recommended that provisions be made for penicillin treatment in sulfonamide resistant cases. In correspondence with the United States Public Health Service, however, it appears that these provisions shall have to await perfection of improved methods of penicillin administration without the necessity of hospitalization.

The committee will hold further meetings when further data are available.

#### JOSEPH SORKNESS, M.D., Chairman.

#### Pneumonia Control

At the meeting of the pneumonia committee of the North Dakota state medical association held at the state capitol, Sunday, February 11, 1945, the following members were present: Chairman, O. W. Johnson, M.D., Rugby; W. H. Gilsdorf, M.D., New England; L. H. Fredericks, M.D., Bismarck; and G. F. Campana, M.D., state health officer. Dr. Johnson presided at the meeting and the following resolutions were made:

- 1. It is recommended by the committee on pneumonia control that sulfathiazole, sulfadiazine, and sulfamerazine continue to be made available to doctors in the state. That these drugs be used first in pneumonia cases, and if after twenty-four hours the sulfa drugs produce no improvement, then penicillin be used; the individual doctor to judge when penicillin should or should not be used.
- 2. Virus Pneumonia. It is recommended that the usual treatment for an ordinary pneumonia be tried for forty-eight hours before using penscillin. The same to hold true in cases of atypical pneumonias.
- 3. Empyema. The recommended dosage for empyema is 250 to 300 units per cc. for chest irrigation. Itrigation to be repeated about every twelve hours.
- 4. Pneumococcic pneumonia. Dosage of penicillin for treatment of pneumonia suggested was from as little as 100,000 units dose for two days in pneumococcic pneumonia in uncomplicated cases, up to 200,000 to 400,000 units per dose for several days. The same treatment to be used for staphylococcic infections.

In many instances, large doses of penicillin are recommended in treatment of pneumonia in order to prevent the organisms from becoming penicillin-fast. In drug-fast strains or in cases of drug sensitivity, it is suggested that either serum and/or penicillin be used for treatment.

Type III pneumonia is best treated with sulfonamide drug and serum. Types VII and VIII the same as above but to a lesser degree. When using sulfonamide therapy the drugs of choice should be sulfadiazine, sulfathiazole, and sulfamerazine.

- 5. It is recommended that penicillin be stocked at depots with instructions that the hospitals may use it for other selected cases not coming under the pneumonia control program; this to be replaced with fresh stock as soon as possible after use at the expense of the one for whom it was used.
- 6. X-ray service to remain the same as before; namely that a maximum of \$15 00 be allowed for pneumonia x-rays on a single case. (A physician to be paid for a maximum of three films, with the privilege of taking more films at no cost to the program if he so desires.)

7. Service on serum to remain the same; namely, only types 1, 2, and 3 pneumonia anti-serum would be available at the typing stations. Other types are to be available at the public health laboratories located in Bismarck and Grand Forks, N. D.

8. The committee recommends that a circular be sent to all doctors in the state requesting better cooperation in reporting pneumonia cases to the state health department. All cases of pneumonia should be reported, regardless of whether they come under the pneumonia control program or not

O. W JOHNSON, M.D., Chairman.

#### REPORTS OF SPECIAL COMMITTEES

The following reports of the special committees were referred to the reference committee on reports of the president, secretary and special committees.

#### Industrial Health

Your committee on industrial health did not hold an official meeting during the past year, and the annual congress usually held in Chicago each February was postponed because of the federal ruling banning conventions.

Due to the stimulation received from the war effort, industrial health is certain to enter the post-war period in a strong and vigorous condition. Adequate medical service to industry, along with a better understanding and treatment of occupational disease and injury will be demanded both by labor and capital.

The type of medical service which has been developed by Henry Kaiser in his defense plants will be further developed and copied following the war, and will afford opportunities for those medical men who are especially interested in this special

C. J. GLASPEL, M.D., Chairman.

#### War Participation

A meeting of this committee was not held during the past year, because the work of the procurement and assignment service for physicians in North Dakota has been limited, mainly, to the preparation of reports on the distribution of physicians in the state. We were not required to furnish a quota of medical officers for the armed forces during 1944.

There are 59 North Dakota physicians in military service (including Red Cross). Of this number, 57 are members of our association.

The critical shortage of physicians in several localities in the state remains a major problem. Attempts to relocate physicians from other states to these areas, all of which are rural, have been unsuccessful. It remains to be seen whether or not the majority of our physicians who left rural communities to enter military service, will return to their former locations. If they do not, many of these critical areas will be in need of physicians. Surveys of the entire state have been made at the request of the procurement and assignment service and the American Medical Association in order that physicians who are discharged from the service may know where the best openings are located. It will remain the duty of the committee on war participation and the procurement and assignment service to insure adequate medical care for all of the citizens of the state as soon as possible.

#### Medical Manpower Situation in North Dakota

Table No. 1 indicates the number of physicians in North Dakota. The total is 367, of which 328 are in active practice. Table No. 2 shows the age distribution of the 328 physicians who are in active practice. Two-thirds of them are 45 years of age or older, and fully one-fifth are over 65 years of age. It is obvious that a large number of young physicians will be needed to fill the ranks in the near future, because the majority of those now practicing who are 65 years of age or older will retire or markedly curtail their practices as soon as possible.

Table No. 3 contains an analysis of the "effective" physicians in North Dakota and the physician-population ratio. A physician under 65 years of age, who is in active practice, is considered effective, but those over 65 years of age are considered one-third effective. With this yardstick, North Dakota has only 280 effective physicians, and the physician-population ratio is 1 to 1917. This is less than the accepted ratio of 1 to 1500. A spot map showing the distribution of physicians in the state reveals that the problem is mainly that of distribu-tion and not scarcity of physicians. Three counties in the state have a ratio of under 1000 citizens per active physician; one county has one active physician for 1000 to 1500 citizens; seventeen counties have one active physician for 1500 to 2000 citizens; seven counties have one active physician for 2000 to 2500 citizens; six counties have one active physician for each 2500 to 3000 citizens; sixteen counties have one active physician for 3000 or more citizens; and in three counties there is no physician (Slope, Billings and Oliver).

TABLE No. Number of physicians in Physicians in active practice (all ag Non-effectives (age, disability, etc.) Medical school teachers Physicians in state hospitals and in Physicians in health departments	North Dakot	328 22 2 2 12
		Total 367
Table No.		20141 307
Age analysis of private practitie		Dahata
Age Groups	Total Number	Darconta
Under 38 years	50	Percentage 15.2
38 to 45		20.1
45 to 65		41.0
65 and over		21.7
Females	4	1.2
Total	328	100.0
Table No.	3 .	~
Physician-Populati		
Number of physicians in full time	practice	
under 65 years of age		255
Effective physicians over 65 years of		24
Number of part time physicians und		
of age (1/3 of 2)	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1
01 ugc (7) 01 uj minimum	**********	
Total number of effective phys	idiane	280
Estimated civilian population, Nov. 1	1042	536 610
Physician-population ratio: 1 to 191	) 1777	770,010
r mysician-population ratio: 1 to 191	, »	

#### Report of the Delegate to the American Medical Association

L. W. LARSON, M.D., Chairman.

Dr. A. P. Nachtwey, delegate, submitted the following report, which was referred to the reference committee on reports of the council, councillors and delegate to the American Medical Association.

Your delegate to the American Medical Association begs

leave to submit the following report:

The American Medical Association held its 95th annual session in Chicago, June 12th to 16th, 1944.

The wartime session of the American Medical Association was extraordinary, in that the attendance, in view of the difficulties of traveling and hotel accommodations, reached a total of 7,284.

The house of delegates devoted its session to consideration of problems that no doubt will have considerable bearing on the future of medical progress. The importance of maintaining an adequate medical supply of pre-medical students was emphasized to the nation and particularly to all interested government officials and to the appropriate committees on military affairs of both the House and Senate.

The functions of the council on medical service were more clearly defined, and more closely coordinated with the office of the council in Washington.

For the first time since your delegate has been attending the annual meetings, there was far from a unanimity of opinion of the delegates in regard to the management of the medical association and to its councils in Washington and to its contact with the association and to the public. Numerous resolutions were introduced bearing this out, particularly by the state of California. The resolutions were defeated, but in the opinion of your delegate, the majority was far from overwhelming.

The address of president Herman L. Kretschmer was pertinent to the existing wartime conditions and was well received. The president-elect, Dr. Roger I. Lee, was a happy choice, as through long years of service to organized medicine, he is fully qualified to carry on and guide the association through perilous

The special feature of this session was the military medical meeting, at which the surgeons general of the Army and of the Navy delivered an inspiring and informative address.

The remainder of the transactions of the business of the house of delegates was carried out in a harmonious manner, and as usual, the various reference committees performed their respective duties in their usual efficient manner.

The house of delegates adjourned sine die at 3 o'clock, June 16th, 1944. A. P. Nachtwey, M.D., Delegate.

#### **NEW BUSINESS**

Dues

The problem of employing a full time secretary, which would necessitate a material increase in the annual dues, was thoroughly discussed by the speaker, secretary, and delegates Wright, Hanna, Waldschmidt, Nachtwey, Williamson, Mc-Cannel and Wood. It was pointed out that a full time secretary would do much to improve our association as well as its component district societies, and would also improve our public relations

Dr. Wright introduced the following amendment to the by-laws: "That chapter nine, section one, line one of the by-laws which reads 'the assessment of \$10.00 per capita,' be amended

to read, 'the assessment of \$50 00 per capita'."

A motion was made by Dr. Wright that the speaker be authorized to appoint a special committee of three to consider the above amendment to the by-laws and report back to the house of delegates at the next session. The motion included the proviso that the secretary be a member of this committee. Motion was seconded by Dr. Waldschmidt and carried unanimously. The speaker appointed Drs. James F. Hanna, A. P. Nachtwey, and the secretary, as the members of this committee.

Nominating Committee

The secretary announced that President Wicks had appointed the following to the nominating committee: Drs. W. Wright, chairman, A. W. Macdonald, and C. V. Bateman.

Adjournment

The first session of the house of delegates was adjourned to reconvene at 8:30 P.M. on the same day, on motion made by Dr. Waldschmidt, seconded by Dr. Nachtwey and carried.

#### SECOND SESSION of the HOUSE OF DELEGATES

Sunday Evening, May 20, 1945

The second session of the house of delegates was called to order by the speaker, John Moore, at 8:35 P.M., in the private dining room of the Rudolph hotel, Valley City, N. D., May 20, 1945.

The secretary called the roll Fourteen delegates responded, and the speaker declared a quorum present. The following delegates and alternates responded: Drs. G. Wilson Hunter, delegates and alternates responded: Drs. G. Wilson Hunter, Fargo; G. W. Toomey, Devils Lake; W. A. Liebeler, Grand Forks; G. M. Williamson, Grand Forks; W. A. Wright, Williston; A. R. Sorenson, Minos; C. V. Bateman, Wahpeton; C. J. Meredith, Valley Crty; R. H. Waldschmidt, Bismarck; W. H. Bodenstab, Bismarck; F. W. Frgusson, Kulm; M. J. Moore, New Rockford, and G. C. Christianson, Sharon.

The secretary read the minutes of the first session, which were approved as read.

#### Election of Officers

Dr. W. A. Wright, chairman of the nominating committee, presented the following report and moved its adoption. The speaker called for nominations from the floor. Hearing none, he declared that a motion would be in order to declare the nominees presented by the nominating committee duly elected to their respective offices. Dr. Hunter moved that the nominees be elected unanimously. The motion was seconded by Dr. Waldschimt, and carried unanimously.

Doctors: James F. Hanna, president.

A. E. Spear, president-elect.
Phillip Arzt, first vice president.
W. A. Liebeler, second vice president. John H. Moore, speaker.

W. W. Wood, treasurer. L. W. Larson, secretary.

A. P. Nachtwey, delegate to the A.M.A., 1945 W. A. Wright, alternate delegate to A.M.A., 1945.

A. D. McCannel, councillor, first district. C. J. Meredith, councillor, fifth district.

A. E. Westervelt, councillor ninth district. State Board of Medical Examiners (term three years): Drs. W. H. Long, F. W. Fergusson, O. W. Johnson.

Representative for the advisory committee on the University Medical Center (term three year): John H. Moore.

Selection of 1946 Meeting Place

The secretary announced that a formal invitation had not been received. Dr. Sorenson stated: "Minot would be very glad to entertain the association next year, provided the ODT will allow us to have the meeting." Motion was made by Dr. Liebeler that the 1946 meeting of the association be held in Minot. The motion was seconded by Dr. Fergusson and carried unanimously.

#### REPORTS OF REFERENCE COMMITTEES

Reference Committee to Consider the Reports of the President, Secretary and Special Committee

Dr. A. R. Sorenson, chairman, presented the following re-

port which was adopted section by section and as a whole
1. Report of the president: The report of the president is filled with thoughts well worthy of intensive study by every member of our association. It brings out clearly the changing trends of thoughts of health care and the fact that we must change our thinking to keep in tune with the times. We are no longer an isolated body, sufficient unto ourselves, but are gradually being incorporated into the new social order. If we are to maintain our identity we must think and act soon, lest we be engulfed in the wave of socialistic regimentation. Our president has shown us the path to pursue; let us heed him. This committee recommends a standing vote of thanks to Presi-

dent Wicks for his outstanding performance of duty.

2. Report of the secretary: The report of the secretary is as usual complete and edifying. How he found the time to perform his work so satisfactorily in addition to his other duties, is a marvel. However, we realize that it is asking too much of him, and would approve his recommendation as to a full time secretary. We also recommend that this association continue its support of the North Central Medical conference

3. Report of the committee on war participation: The report of this committee on the medical manpower situation in North Dakota is illuminating and shows definitely the need of bringing in more and younger men to satisfy the medical requirements of this state. It is recommended that the booklet put out by the state committee on health planning be carefully studied. It is enlightening as to lay health care thinking and should teach us to profit by our real or supposed shortcomings

4. Report of the committee on industrial health: I move

that this report be adopted.

A. R SORENSON O. T. BENSON
G. C CHRISTIANSON

Reference Committee on Reports of the Council, Councillors and Delegate to the A.M.A.

Dr. G. Wilson Hunter, chairman, presented the following report, which was adopted section by section and as a whole on motion of Dr. Hunter, duly seconded and carried.

1. Report of the chairman of the council: Your reference committee recommends the adoption of the report of the council. We would like to emphasize the following points that have been named in this report:

a) The consideration of an increase in the annual dues in order that a full time secretary can be employed, is certainly

b) Recognizing the diminishing number of physicians in North Dakota, we feel that every inducement should be made

to get men with satisfactory training to come into the state c) We would like to draw your attention to the unanimous adoption by the council of the report of the tuberculosis committee regarding the use of a mobile unit. We feel that this is a very worthwhile project.

The committee commends the encouragement by the council of the steps to improve the medical school and wishes to recognize the work of Dean French throughout the years in this connection

2. Reports of the councillors. Your reference committee recommends the adoption of the reports of the councillors and suggests that the members of the smaller societies who are une to hold scientific meetings, continue to visit the meetings of the larger groups.

3 Report of the delegate to the American Medical Association: Your reference committee recommends the adoption of the report of the delegate to the American Medical Association However, we would like to have Dr. Nachtwey elucidate the

paragraph of his report on the functions of the council on medical service. He mentioned that these functions were more clearly defined and more closely coordinated with the office of the council in Washington. We feel that the activities of this group might be more fully discussed for the delegates. (Dr. A. P. Nachtwey, delegate to the American Medical Association, gave a resume of the establishment of the council on medical service and public relations of the American Medical Association, and its record to date. His remarks were amplified by the secretary.)

## Reference Committee to Consider the Reports of Standing Committees

Dr. Waldschmidt, chairman, presented the following report, which was adopted section by section, and as a whole on motion by Dr. Waldschmidt, duly seconded and carried.

- 1. Committee on medical education: We recommend the adoption of the report of the committee on medical education and wish to commend the committee for its efforts to obtain funds for a new science building from the state legislature.
- 2. Committee on necrology and medical history: Your reference committee recommends the adoption of the report of the committee on necrology and medical history and wishes at this time to pay special commendation to the members of the committee for their excellent presentation. The committee regrets that such a lengthy report was necessary because so many of the society members passed away during the preceding year. The committee requests that the speaker of the house of delegates ask the members of the house to stand for a period of one minute in silent tribute to the memory of those members who are no longer with us. (Members of the house of delegates stood one minute in silent tribute.)
- 3. Committee on public policy and legislation: Your reference committee recommends the adoption of the report of the committee on public policy and legislation and approves the satisfactory manner in which the enabling act was passed by the senate and the house. The committee also notes that it carried the emergency clause and became a law when the governor signed the bill on February 8th.
- 4. Committee on tuberculosis: Your reference committee recommends the adoption of the report of the committee on tuberculosis and notes with a great deal of interest that a staff has been completed to carry out the screening of high schools and institutions of higher learning, and that the program will be expanded as rapidly as the facilities are available.
- 5. Committee on official publication: Your reference committee recommends the adoption of the report of the committee on official publication.
- 6. Committee on cancer: Your reference committee recommends the adoption of the report of the committee on cancer, and wishes to commend the committee for its excellent endeavor to raise funds for the eradication of cancer. Your committee is also very happy to report that thirty-six North Dakota physicians attended the special course in cancer at the Continuation Center in Minnesota during the first four days of February of this year.
- 7. Committee on fractures: Your reference committee recommends the adoption of the report of the committee on fractures.
- 8. Committee on maternal and child welfare: Your reference committee recommends the adoption of the teport of the committee on maternal and child welfare, and wishes to commend the committee for its endeavor to further reduce the infant mortality rate. The infant mortality rates, according to the report, show improvement in North Dakota. The provisional rate for 1944 is 35 to 1000 live births. The committee also notes that a recent outbreak of diphtheria calls our attention to further work that is necessary in preventable diseases, especially in regard to immunization. We trust that these immunization clinics will be held.
- Committee on crippled children: Your reference committee recommends the adoption of the report of the committee on crippled children.
- 10. Committee on venereal disease: Your reference committee recommends the adoption of the report of the committee on venereal disease.

11. Pneumonia control: Your reference committee recommends the adoption of the report of the committee on pneumonia control. It is gratifying to note that sulfadiazine, sulfathiazole, and sulfamerazine continue to be made available to the doctors in the state, and that after twenty-four hours if the sulfa drugs produce no improvement, that the individual doctor should judge when penicillin should or should not be used.

W. H. WALDSCHMIDT O. A. SEDLAK M. J. MOORE

#### Reference Committee Report of Committee on Medical Economics

Dr. P. H. Woutat, chairman, presented the following report and moved its adoption; the motion was seconded by Dr. Waldschmidt: "Your committee to consider the report of the committee on medical economics begs leave to submit the following report: The committee on medical economics is to be commended and thanked for their efforts during the past year.

Testimony received by your committee from many interested officers, members and delegates indicates certain pertinent facts.

The principle of prepaid medical insurance plans is favored by most members of the North Dakota State Medical association and by most of its component societies.

The approval and cooperation of the big majority of the physicians in the state would be necessary to the success of any such plan operated by the state medical association.

There is a decided difference of opinion among members of the state medical association as to the advisability of the state medical association sponsoring its own plan at this time. This difference of opinion is based on certain weaknesses in the proposed plan, chief of which are the following:

- 1. Many members feel that there is as yet insufficient experience with such plans in rural areas to warrant the state medical association in a state as sparsely settled as ours embarking on such a plan. Certain larger and more populous states have recently started such plans and their experience should be available to us in the near future. It is felt by many that experiences based on plans operating in industrial areas do not necessarily apply to our state.
- 2. The proposed plan makes no provision for catastrophic medical illness. Many members wonder if some feature might be added, perhaps on an indemnity basis, to partially cover such illness, thus making for more complete protection and a better policy for the insured.
- 3. It is felt by some members that any prepayment insurance plan probably tends to result in the transfer of considerable medical and surgical treatment from areas with no hospital facilities to areas where such facilities are available. This is likely to result in increased migration of physicians to areas with hospital facilities. Under present circumstances such migration would be detrimental to many areas already poorly supplied with medical services.

For the above and other reasons, your committee recommends as follows:

- 1. That the report of the committee on medical economics be not adopted.
- That the house of delegates of the North Dakota State Medical association approve the principle of prepayment medical insurance plans.
- That the North Dakota State Medical association increase its efforts to fully inform the physicians of the state regarding the various possibilities of such plans.

4. That the North Dakota State Medical association attempt to ascertain the probable public response to such a plan.

5. That the medical economics committee of the North Dakota State Medical association continue its study of such plans, paying particular attention to the working of plans now starting operation in other rural states, with a view to presenting a modification of the proposed plan to the state association."

P. H. WOUTAT, Chairman J. F. HANNA A. P. NACHTWEY D. J. HALLIDAY

W. W. Wood.

#### DISCUSSION

Dr. Woutat: As you probably all know, this report was written more for the public than it was for the members of the house of delegates. We attempted to say that we are not ready to put such a plan in operation. At the same time, we favor such a plan but want more experience. We hoped that there would be nothing in there, if it got into the hands of the public, that would put us in an unfavorable light. I do not know whether the whole thing should be released.

DR. WRIGHT: I do not mean to criticize, but I would say that the report is filled with pious platitudes. They say yes, and they say no. Let's have it definite. I also ask, Mr. Speaker, that the vote on this report be a tally vote from each

district so we know just where we stand,

Dr. M. J. MOORE: I think I will speak for the younger men, with all due respect to some of the older fellows: Something is going to happen whether we take on a program like this or not. Someone is going to beat us to it. It is the younger fellows who are going to suffer, not you older men. I think we all respect Dr. Wright's integrity. I think he has studied all these plans. I have the utmost confidence in his ability to draw up such a plan. I would be in favor of accepting it as he drew it up.

SPEAKER: Any further discussion? This is what we want, This is the most important matter before us this year.

Dr. NACHTWEY: I want to say a word or two about this, because I was a member of the committee. As you know, we had an open meeting this afternoon. We spent all afternoon on it. This is not our own judgment. We appreciate the fact that the public relation phase that Dr. Wright stressed should be thought of. I do not agree with Dr. Wright when we damn this thing with faint praise. We are not doing this. The com-mittee members were in entire accord that they did not want the medical association to go into the insurance business. I think we were all in accord with that. We took a lot of time to this after the meeting this afternoon. As Dr. Woutat said, this report was drafted not to the house of delegates, but it was drafted with the idea that it would be released to the press. The committee agreed that we are going to get something, possibly, although an argument was brought up, and I think it is tenable, that because of prosperous conditions, the farmers will not do anything about a plan. They have a lot of money and won't have anything to do with it. In hard times they will be hollering for it more. We are not kicking it out of the window entirely. We do, definitely, need more experience from other states in agricultural sections. The committee felt we would be in no hurry about it, but we are certainly not turning it down.

SPEAKERS Any further discussion?

DR. HUNTER: If you do not approve the report, you are turning down the plan. I do not understand the language of

the reference committee report.

SPEAKER: We will ask the secretary to read again the recommendations of the committee; that is the conclusions Perhaps Dr. Woutat should read this as it is in his writing. (The rec-

ommendations of the reference committee were re-read.) DR. WRIGHT: I understand that in the No. 1 recommendation, the report be not adopted. The rest of it is entirely irrelevant and immaterial and just suggestions for the future.

SPEAKER: It has not been brought in, in that way. It was brought in as a combined report and not split into sections.

DR. WRIGHT: How can you vote on the whole thing?

SPEAKER: You can do that, or we can entertain an amendment to the motion that is before us It could be amended to strike out certain clauses.

DR. WRIGHT: The essential vote is the first sentence.
DR. Wood: Would it make it any better to have it "not adopted at this time"? I think this might clear it up. It does not mean we will not adopt it in the future, just that we will

not adopt it at this time.

DR. WICKS: I was just wondering, in view of the second section, whether the first section is necessary, because we do go ahead and say that we agree to study it further. I would suggest that one counteracts the other. If this is a matter of public relations, I think the lasty would attach more importance to the first clause. It could be said that the report of the committee is accepted with those reservations. I think it would be better then.

SECRETARY: Could I interject just this? At the end of the report of the committee on medical economics, just before the entire plan is given, we read, "The economics committee submits the following proposal to the house of delegates," and there are five proposals. I do not see how you can consider the report of the committee on medical economics in any other way than either accepting, rejecting temporarily, or completely rejecting it, because in those proposals it says, first, that a medical service corporation be organized in accordance with provision of house Bill No. 187. In other words, if you sidestep the issue, and accept the report and do not make it clear, where will we be? For instance, No. 5 states "that the house of delegates loan the corporation a sum of not less than \$5000 to cover expenses incurred in organization." I think we should take a stand on the acceptance of this report.

299

Dr. Hanna: I think a tally was kept by Dr. Halliday this afternoon, and this report is the reaction of the entire house of

delegates.

SPEAKER: May I temind you then, gentlemen, you have a motion before the house to adopt this report. Had Dr. Wright not requested it, I was going to ask for a roll call on this important question. I do not know whether that satisfies your re-

quest for a method of voting or not,

DR. WRIGHT: I would like to have it very thoroughly understood. I am asking this for my own information, as to how to conduct the affairs of this committee. I want to know definitely, is this yes, or no? What are you turning down? Are you turning down the entire thing we have presented here with all five recommendations in my report, or are you suggesting that maybe it is a good idea, but we have not the right stuff? I would like to have this very definite. As I understand the first part of that motion, you disapprove of every part of this proposal. If anyone votes in favor of the motion, they are voting to discard or reject every part of this report?

SPEAKER: That would be my interpretation.

DR. Moore: If you vote Aye, you are turning down the entire report?

DR. Woon: I do not believe the committee wishes it turned

down completely.

SPEAKER: Do you make that as an amendment?
DR. Wood: Yes, if the committee will accept that

SPEAKER: Dr. Woutat, will you poll your commuttee and find out if they will accept the words "at this time"?

DR. WOUTAT: Yes. I want to imply that we do not accept it at this time, and if we accept it at some other time, it will be an entirely new report. The intent is to advise continued study with a view to approving the plan when we have more experience available. It is not an attempt to throw this out of the window. We think it should be more fully studied, and we do not think the association is ready to jump into it right now.

SPEAKER: Is there a second to Dr. Wood's amendment?

DR MEREDITH: I second the amendment.

SPEAKER: Is there any discussion on the amendment? Dr. Moore: I would like to have this read as amended SECRETARY: "That the report of the medical economics com-

mittee be not adopted at this time." DR. WRIGHT: I do not think this adds anything to it

DR. WALDSCHMIDT: It seems to me that the discussion we had this afternoon on the report of the committee on medical economics, indicated a desire of the delegates to keep this problem alive. The reports of the individual delegates indicated a favorable attitude toward some sort of a prepayment plan throughout the state. If the house of delegates deems it destrable in the future, a plan can be adopted which will be as good as the one proposed in this report, if not better. The Sixth district society voted to table the plan for further study, but had no idea of throwing it out entirely

SPEAKER: Is there any further discussion?

DR. WRIGHT: The plan in this book is available at all times All I want to know now is, do you approve it now, or don't you approve it now?

SPEAKER: It is my interpretation, that if the amendment is approved at this time, there would be further plans Are you ready for the question on the amendment? I will ask the secretary then to read the amendment upon which you are now going to vote by record vote.

Secretary: The recommendation submitted is that the re-

port of the medical economics committee be not adopted. The

amendment is to add the words "at this time" we are voting

on the amendment.

Record Vote. Drs.: Hunter, No; Sedlak, No; Hanna, Yes; Toomey, Yes; Woutat, No; Williamson, Yes; Wright, Pass; Sorenson, Yes; Halliday, Yes; Bateman, No; Meredith, Yes; Waldschmidt, Yes; Bodenstab, Yes; Fergusson, Yes; Nachtwey, Yes; Wood, Yes; Moore, Pass; Christianson, No.

DR. WILLIAMSON: Will you please explain this vote to me

again?

Speaker: You are voting on the amendment that you are not adopting it at this time.

DR. WILLIAMSON: My vote is still Yes.

SECRETARY: Yes, 11; No, 5; Pass, 2.

Speaker: I declare the amendment passed. Are you ready for the question? Dr. Larson, will you read the recommendation with the amendment incorporated?

SECRETARY: For the above and other reasons, your commit-

tee recommends as follows:

1. That the report of the committee on medical economics

be not adopted at this time.

2. That the house of delegates of the North Dakota State - Medical association approve the principle of prepayment medical insurance plans.

3. That the North Dakota State Medical association increase its efforts to fully inform the physicians of the state regarding the various possibilities of such plans.

4. That the North Dakota State Medical association attempt to ascertain the probable public response to such a plan.

5. That the medical economics committee of the North Dakota State Medical association continue its study of such plans, paying particular attention to the working of plans now starting operation in other rural states, with a view to presenting a modification of the proposed plan to the state

SPEAKER: You are now going to vote, gentlemen, by roll call on the motion as amended. Will the same two tellers act at the conclusion of this vote? Will you call the roll, Mr.

Secretary?

SECRETARYS Record Vote: Drs.: Hunter, No; Sedlak, No; Hanna, Yes; Toomey, Yes; Woutat, Yes; Williamson, Yes; Wright, No; Sorenson, Yes; Halliday, Yes; Bateman, Yes; Meredith, Yes; Waldschmidt, Yes; Bodenstab, Yes; Fergusson, Yes; Nachtwey, Yes; Wood, Yes; Moore, No; Christianson, No.

SPEAKER: Will the tellers please announce the report of the

vote?

Dr. Sorenson: The tabulation of the vote is correct.

SPEAKER: Mr. Secretary, will you please announce the vote? SECRETARY: There were 13 Yes; 5, No. SPEAKER: I declare the motion of the reference committee to consider the report of the committee on medical economics, as amended by the House, carried.

#### **NEW BUSINESS**

#### Amendment to By-Laws - Dues

The speaker called for a report of the special committee appointed at the first session to consider the amendment to Chapter 9, Section 1, Line 1, of the by-laws.

Secretary Larson, chairman of the committee, gave the following report, which was moved for adoption by Dr. Nachtwey, seconded by Dr. M. J. Moore, and carried unanimously: Your committee recommends that the amendment to Chapter Nine, Section One, Line One of the by-laws presented by Dr. Wright, and which reads "The assessment of \$50.00 per capita," be amended to read "The assessment of \$35.00 per

#### Discussion

Secretary Larson: All the delegates seem agreed that we should have a full time secretary. If the budget I presented this morning is anywhere near correct, we will need a revenue of approximately \$10,000 per year to cover the expense of a full time secretary and the other expenses of the association. We do not know how many of our members who are now in the service and are not paying association dues, will return, or when they will return. It appears that about 300 paid memberships is the best we can expect until the service men return and until more physicians can be brought into the state. Dividing \$10,000 by 300, we arrived at a figure of approximately \$35.00 per year per member. I might add, that in the opinion of the committee, the annual registration dues should be materially reduced.

Resolutions

Dr. W. H. Bodenstab, chairman of the committee on resolutions, presented the following report, which was adopted unanimously.

1. WHEREAS, the physicians of Valley City have contributed much to the success of the 1945 meeting of the house of

delegates,
BE IT THEREFORE RESOLVED, that a vote of thanks be extended to the physicians of Valley City for their contri-

2. WHEREAS, the City of Valley City and its Civic Commerce association has provided comfortable, suitable and adequate facilities for the 1945 meeting of the house of delegates, BE IT THEREFORE RESOLVED, that a vote of thanks

be extended to the city of Valley City and the Valley City Civic and Commerce association for the courtesies extended and the facilities provided.

W. H. BODENSTAB, Chairman, W. A. WRIGHT

F. W. FERGUSSON

#### Committee Authorized to Negotiate for a Full Time Secretary

After discussion, Dr. Wright moved that a special committee of three be appointed by the president to study the matter of engaging a full time secretary. The motion was seconded by Dr. Halliday and carried unanimously.

Adjournment

The house of delegates adjourned sine die at 10:00 P.M. Installation of President

SPEAKER: I will ask at this time that Dr. Wicks and Dr.

Woods escort the new president to the platform.

Dr. Wicks: Greetings, Dr. Hanna. It seems to me that I have been waiting for this moment a very long time. I am sure you come well prepared for the administrative duties of the presidency. You are going to preside over a splendid group of individuals. I know you will have their full cooperation. I know you will also have a splendid administration. With my hand, goes the office and any honors pertaining thereto; my best wishes and my congratulations. Members of the association, our president, Dr. James F. Hanna.
Dr. James F. Hanna: Mr. Chairmen and members of the

house of delegates. This is a historic meeting. Never before has the North Dakota state society been called upon to cancel its regular, planned scientific meeting to assist in a war effort. It is also historic for the decision you are about to make. I can think of no bigger decision to be asked of the house of delegates than the one asked of you—to favor or reject a program committing the profession of the state to a medical service plan. There are among you those that favor this plan, while others would reject it. Hearing each other's views and discussing them is the true democratic principle of arriving at a decision. Then when a decision is reached, to abide by the rule of the majority. We of the profession all look to you for your decision.

I, naturally, feel honored to be chosen president of the state society for the coming year. At the same time, I cannot but feel unprepared to carry on the work of the office during these times. I only hope I can represent you as well and as successfully as did Dr. Wicks during the past year. He has given freely of his time, appeared before various groups and they have profited by his counsel.

In the olden days when the office meant presiding at the scientific meeting, and meeting your old friends, it was a happier time. Let us hope that N-day of normalcy will soon be with us. Now all appointments require the acceptance of more responsibility and the giving of one's time. The chairmanship and membership of the various committees mean more responsibility.

I cannot help but admire the work of our economics committee, and the able leadership of the chairman, Dr. Willard Wright, during the past year.

We have our returning medical officers. They are deserving of much from us. Can our educational committee arrange postgraduate or refresher courses for them? Can our committee on public policy and legislation see that they are given their just reward if the occasion should arise?

The recently enacted "Medical Center" law, which provides for a study of the need for a four year medical school course at the University of North Dakota calls for our enthusiastic support.

In closing, I would feel very ungrateful if I did not say a word of appreciation for the untiring effort and work of our secretary, Dr. Leonard Larson. I will need his counsel and I hope he will permit me to call upon him for assistance.

I shall endeavor to represent the state society to the best of my ability and trust the coming year will accomplish as much as the past year under the able guidance of Dr. Wicks. SPEAKER: I want to say just one or two words to you, Dr. Hanna. I have been speaker of this house of delegates for five years. I have had a luttle experience with medical societies, national and local. I have never at any time met with a grander bunch of fellows than the house of delegates. As the speaker, I certainly pledge to you the fullest cooperation of the house of delegates.

301

Dr. Williamson: I would suggest that Dr. Liebeler extend greetings from Grand Forks to our new president, Dr. Hanna.

DR. LIEBELER: It is a pleasure, Dr. Hanna, to greet you from the Grand Focks District medical society, and we offer all the help within us.

## NORTH DAKOTA STATE MEDICAL ASSOCIATION ROSTER -- 1945

MEMBERSHIP BY DISTRICTS
ASS COUNTY MEDICAL SOCIET

	MEMBERSHIP BY DISTRICTS	
C/	ASS COUNTY MEDICAL SOCIETY	
PRESIDENT	Fortney, A. C. Fargo	Nichols, A. A Fargo
		Night I W C
Sedlak, O. A Fargo	Foster, G. C. Fargo	Nichols, W. C Fargo
SECRETARY-TREASURER	Geib, M. J. Fargo	Oftedal, Trygve Fargo
Heilman, Charles Fargo	Gronvold, F. O Fargo	Ostfield, J. R Fargo
*	Hanna, J. F Fargo	Pray, L. G Fargo
Bacheller, Stephen Enderlin	Haguen, H. Fargo	Patterson, T C Lisbon
Baillie, W. F. Fargo	Haugrud, E. M Fargo	Richter, E. H Hunter
Boerth, E. H Buffalo	Hawn, H. W Fargo	Rostel, Hugo Fargo
Bond, J. H Fargo	Heilman, Charles O Fargo	Sand, Olaf Fargo
Borland, V. G Fargo	Hendrickson, G Enderlin	Schatz, George Fargo
Burt, A. C. Fargo	Hunter, G. W. Fargo	Sedlak, O. A Fargo
Burton, P. H. Fargo	Huntley, H. B. Kindred	Sinner, B. L Fargo
Clark, I. D., Jr Fargo	Ivers, G. W. Fargo	Skelsey, A. W. Fargo
Clay, A. J. Fargo	Joistad, A. H. Fargo	Stafne, W. A Fargo
Darner, C. B. Fargo	Klein, A. L. Fargo	Stolinsky, A Boise, Idaho
Darrow, F. I. Fargo	Lancaster W. E. G. Fargo	Swanson, J. O Fargo
Darrow, K. E. Fargo		Tainter, Rolfe Fargo
D.C E A E	Larson, G. A. Fargo Lewis, T. H. Fargo	
DeCesare, F. A		Tronnes, Nels Fargo
Dillard, J. R. Fargo	Long, W. H Fargo	Urenn, B. M Fargo
Elofson, C. E. Fargo	Mazur, B. A. Fargo	Watson, E. M Fargo
Fjelde, J. H Fargo	Miller, H. W Casselton	Weible, R D Fargo
Fortin, H. J. Fargo	Morris, A. C. Fargo	Winn, W. R Fargo
D	EVILS LAKE MEDICAL SOCIETY	
PRESIDENT	Fawcett, D. W Devils Lake	McIntosh, G. J Devils Lake
Fox, W. R. Rugby	Fawcett, J. C Devils Lake	McKeague, D. H Maddock
100, 111 111 11111111111111111111111111	Fawcett, N. W Devils Lake	Palmer, Dolson Cando
SECRETARY-TREASURER	Fox, W. R. Rugby	Reed, Paul Rolla
Fawcett, J. C Devils Lake	Graham, J. D Devils Lake	Sihler, W. F Devils Lake
rawcott, J. C Devilo Lake		Smith, Clinton Devils Lake
Call, A. M. Rugby	Greengard, M. Rolla Horsman, A. T. Devils Lake	Stickelberger, Josephine . Oberon
Clayman, Sidney G. San Haven	ti. i. ti t	Toomey, G. W Brinsmade
Clayman, Sidney G San Flaven	Hughes, B. JRolla	Toomey, G. W Brinsmade
Drew, G. F. Devils Lake Engesather, J. A. D. Brocket	Keller, E. T. Rugby	Vigeland, J G Brinsmade
	MacDonald, J. A Cando	Wold, M. D Maddock
	FORKS DISTRICT MEDICAL SOCIE	
PRESIDENT	Flaten, A. N. Edinburgh	Panek, A F Milton
Tompkins, C. R. Grafton	French, H. E Grand Forks	Peake, Margaret F Grand Forks
SECRETARY	Glaspel, C. J Grafton	Quale, V S Grand Forks
	Glaspel, G. W Grafton	Rand, C. C. Grafton
Jensen, A. F Grand Forks	Goehl, R. O Grand Forks	Ransom, H. R Grand Forks
TREASURER	Griffin, V. M Grand Forks	Robertson, F O Grand Forks
Dailey, C. W Grand Forks	Grinnell, E. L Grand Forks	Ruud, H. O Grand Forks
	Haagensen, E. C Grand Forks	Ruud, M B Grand Forks
Alger, L. J. Grand Forks	Hardy, N. A Minto	Silverman, Louis Grand Forks
Bartle I P Langdon	Haugen, C. O. Larimore	St. Clair, R. T Northwoods
Bartle, J. P. Langdon Benson, T. Q. Grand Forks	Hetherington, J. E. Grand Forks	Stratte, J. J Grand Forks
Benwell, H. D Grand Forks	Innen A F Grand Forks	Thorgrimson, G G Grand Forks
Brown, G. F. Grand Forks	Jensen, A. F Grand Forks Kohlmeyer, F. C Lakota	Tompkins, C R Grafton
Burrows, F. N. Bathgate	Lamont, John G	Vance, R. W Grand Forks
Campbell, R. D Grand Forks	Landry, L. H Walhalla	Vollmer, F J Grand Forks
		Waldren, G. R Cavalier
Canterbury, E. AGrand Forks	Leigh, R E. Grand Forks Liebeler, W. A. Grand Forks	Weed, F. E. Park River
Caveny, K. P. Langdon Countryman, G. L. Grafton	Lohrbauer, L. T. Grand Forks	Welch, W. F. Larimore
	Lonroauer, L. I Grand Forks	Waldren, H. M., Jr. Grand Forks
Countryman, John E.	Lommen, C. E. Fordville	Williamson, G. MGrand Forks
Arch Cape, Ore.	Mahowald, R. E Grand Forks	Williamson, G. M. Grand Porks
Dailey, Walter C Grand Forks	Moore, John H Grand Forks	Witherstine, W. H. Grand Forks Woutat, P. H.
Deason, F. W Grafton	Mulligan, V. A Langdon	Youngs, Nelson A.
Field, A. B. Forest River	Muus, O. H Grand Forks	tomiks, treison v.

ко	TANA DISTRICT MEDICAL SOCIET	ry
PRESIDENT	AbPlanalp, Ira S Williston	Jones, C. S Williston
Jones, C. S. Williston	Craven, Joe D Williston	Korwin, J. J. Williston
•	Craven, J. P. Williston	Lund, C. M Williston
SECRETARY-TREASURER	Johnson, M. H. D Watford City	Skovholt, H. T Williston
Skovholt, H. T Williston	Johnson, P. O. C Watford City	Wright, W. A Williston
	THWEST DISTRICT MEDICAL SOCI	ETV
PRESIDENT	Fischer, V. J. Towner	Malvey, Kenneth Bottineau
Brunner, G. HMinot	Fulton, A. M. Minot	McCannel, A. D. Minot
SECRETARY-TREASURER	Gammell, R. T. Kenmare	Moreland, J.W Carpio Moffat, George Crosby
Nelson, Woodrow Minot	Garrison, M. W Minot	
Beck, Charles Harvey	Gerber, L. S Crosby Goodman, R Powers Lake	Nelson, L. F. Bottineau Nelson, Woodrow Minot
Blatherwick, W. E. Van Hook	Greene, E. E Westhope	Neve, H. E Minot
Breslich, Paul	Halliday, D. J. Kenmare	O'Neill, R. T Minot
Brunner, Harmon Minot	Halverson, C. H Minot	Parnall, Edward Minot
Cameron, A. L. Minot	Halverson, H. D Minot	Ransom, E. M Minot
Campbell, G. L. Minot	Hammargren, A. F Harvey	Ray, R. H. Garrison
Carr, A Minot	Hanson, G. C Minot	Rowe, P. H Minot
Carr, Andy M Minot	Ittkin, Paul	Seiffert, G. S Minot
Craise, O. S Towner	Johnson, C. G Rugby	Smith, J. Allen Minot
Cronin, D. J. Minot	Johnson, J. A. Bottineau	Sorenson, A. R Minot
Devine, J. L., Jr. Minot	Johnson, O. W. Rugby	Stone, O. H., Jr. Bottineau
Devine, J. L., Sr. Minot	Kaufmann, Mark Velva	Timm, I. F Makoti
Downing, W. M Minot	Kermott, Henry Minot	Wall, Willard W Minot
Durnin, W. G. Westhope	Kermott, L. H Minot	Wallbank, W. L San Haven
Dyson, Ralph E Minot	Knudson, K. O Glenburn	Woodhull, R. B Minot
Erenfeld, F. R Minot	Kositsky, A Drake	Wheelon, F. E Minot
Erenfeld, H. M. Minot	Lampert, M. T Minot	White, R. G Minot
Flath, M. G Stanley	* Lemieux, Darie Rolla	Yeomans, T. N Minot
RIC	HLAND COUNTY MEDICAL SOCIE	
PRESIDENT	Bateman, C. V Wahpeton	Miller, H. H. Wahpeton
Kellogg, M. D. Fairmount	Beithon, E. J Hankinson	O'Brien, L. T. Wahpeton
	Hoskins, J. H Wahpeton	Reiswig, A. H. Wahpeton
SECRETARY-TREASURER	Irvine, V. S. Lidgerwood	Thompson, A. M Wahpeton
Reiswig, A. H Wahpeton	Kellogg, I. W Fairmount	Veitch, Abner Wahpeton
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SH	EYENNE VALLEY MEDICAL SOCIET	
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SH	EYENNE VALLEY MEDICAL SOCIET Almklov, L Cooperstown Brown, Fred	
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Johnson, P. O. C. Watford City Joistad, A. H. Fargo Jones, C. S. Williston Kaufmann, M. I. H. Velva Kellogg, I. W. Fairmount *Keller, E. T. Rugby Kermott, Henry Minot Kermott, L. H. Minot Kjelland, A. A. Hatton Klein, A. L. Fargo Knudson, K. O. Glenburn
Johnson, P. O. C. Watford City Joistad, A. H. Fargo Jones, C. S. Williston Kaufmann, M. I. H. Velva Kellogg, I. W. Fairmount *Keller, E. T. Rugby Kermott, Henry Minot Kermott, L. H. Minot Kjelland, A. A. Hatton Klein, A. L. Fargo Knudson, K. O. Glenburn Knutson, O. A. Buxton Kohlmann F. C. Lalen
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<b>★</b> ★	Me Mil Mil Mil Mil	uni ler, ler, ler,	er, H. H. Sa	H. H. W. mue Geo	J  I rge .		Wah Cas Elle	Oakes peton selton endale Iilnor
**	Me Mil Mil Mil Mil	uni ler, ler, ler, che	er, H. H. Sa II,	H. H. W. mue Geo	J l rge _		Wah _ Cas _ Elle _ N	Oakes peron selton endale lilnor Crosby
**	Me Mil Mil Mil Mo Mo	uniler, ler, ler, che ffat	er, H. Sa II, ith.	H. H. W. Mue George	J l rge -		Wah Cas Elle N	Oakes peton selton endale dilnor crosby zelton
**	Me Mil Mil Mil Mo Mo Mo	uniler, ler, ler, che ffat nte	er, H. H. Sa II, ith,	H. H. W mue Georg G.	l rge	G	Wah Cas Elle N C	Oakes peton selton endale dilnor Crosby zelton Forks
**	Me Mil Mil Mil Mo Mo Mo	ler, ler, ler, che ffat nte ore	er, H. Sa II, ith,	H. H. W. Mue Georg G. ohn	lrge _	G Ne	Wah Cas Elle Ha Tand	Oakes peton selton endale dilnor crosby zelton Forks kford
**	Me Mil Mil Mi Mo Mo Mo	ler, ler, ler, che ffat nte ore	er, H. Sa ell, , G ith, , M	H. H. W. Mue Georg G. hn	Jlrgege	G. Ne	Wah Cas Elle In N Ha rand W Roo	Oakes peton selton endale dilnor crosby zelton Forks kford
**	Me Mil Mil Mi Mo Mo Mo	ler, ler, ler, che ffat nte ore rela	er, H. Sa II, I, G ith, Mand,	H. H. W. George G. ohn J.	J l rge ge H	G. Ne	Wah  Cas Elle  N  Ha  rand  Roc  C	Oakes peron selton endale dilnor crosby zelton Forks kford carpio
**	Me Mil Mil Mi Mo Mo Mo	ler, ler, ler, che ffat ore ore rela	er, H. Sa Il, ith, Mand,	H. W. Mue George G. J. J. C.	J I rge _ ge H	G. Ne	Wah Cas Elle N Ha rand w Roc	Oakes peton selton endale dilnor Crosby zelton Forks kford Carpio
**	Me Mil Mil Mo Mo Mo Mo	ler, ler, ler, che ffat ore ore rela rris	er, H. Sa II, Gith, Mand, A. L.	H. W. mue George G. ohn J. C. B.	I	G. Ne	Wah Cas Elle N Ha rand w Roc Biss	Oakes peron selton selton indale dilnor crosby zelton Forks kford arpio Fargo marck
**	Me Mil Mil Mil Mo Mo Mo Mo	ller, ller, ller, che ffat nte ore rela rela yer	er, H. Sa II, Jo ith, M A A A A A A	H. W. Mue Georg G. hn J. C. B.	H.	G. Ne	Wah Cas Elle Cas Fla Frand Wah Roo Cas Lai	Oakes peron selton selton indale Milnor crosby zelton Forks kford arpio Fargo marck
**	Me Mil Mil Mil Mo Mo Mo Mu Mu	uniler, ller, ller, cche ffat nte ore ore rela rris yer llig	er, H. Sa ith, , M and, , L. an, y,	H. H. W. Mue George G. hn J. C. B. V. C. M.	H	G. Ne	Wah Cas Elle Character Rand W Roo Character Biss Lan Scr	Oakes peton selton male filnor crosby zelton Forks kford arpio Fargo narck agdon anton
**	Me Mil Mil Mil Mo Mo Mo Mu Mu Mu	uni- ller, ller, che ffat nte ore rela rris yer lllig rra us,	er, H. Sa ell, Gith, , Jo mnd, , A. can, A. can, A. co	H. H. W. Mue George G. hn J. C. B. V. C. M.	H	G	Wah Cas Elle Ha rand W Roc Biss Lan Scr	Oakes peton selton endale filnor crosby zelton Forks kford larpio Fargo marck igdon anton Forks
**	Me Mil Mil Mil Mo Mo Mo Mo Mu Mu Mu	uni- ller, ller, che ffat nte ore ore rela rris yer, llig irra cht	er, H. Sa ell, Gith, Jo nnd, A. L. an, K. O. weey	H. W. Mue George G. hn J. C. B. V. M. H. A.	J	G. Ne	Wah  Cas Elle Ha rand W Roc Lai Scr	Oakes peton selton endale filnor crosby zelton Forks kford farpio Fargo narck ngdon anton Forks inson
**	Me Mil Mil Mi Mo Mo Mo Mu Mu Mu Na	uni- ller, ller, che ffat ore ore rela rris yer, llig rra us, cht	er, H. Sa ith, , Jo ith, , A , L. an, , A , L.	H. H. W. mue George G. Shin J. C. B. V. M. H. A. F.	Jrgege	G. G	Wah Cas Elle Ha rand W Roc Scr Lai Scr rand Dick	Oakes peton selton endale Milnor Crosby zelton Forks kford arpio Fargo narck igdon anton Forks inson tineau
**	Me Mil Mil Mil Mo Mo Mo Mu Mu Ne Ne	uniler, ller, ller, che ffat nte ore rela rris yer lllig rra cht lsor	er, H. Sa ell, , G ith, , J on , M and, , A an, , L. an, , W on , L on , W on , W on , W on , W	H. H. W. Mue George G. h. J. C. B. V. C. M. H. A. F. V. Occ	J	G. Ne	Wah Cas Elle Mah Rand Wan Roc Bisi Lai Scr rand Dick Bot	Oakes peton selton endale dilnor crosby zelton Forks kford arpio Fargo narck ngdon anton Forks inson tineau Minot
**	Me Mil Mil Mil Mo Mo Mo Mu Mu Mu Ne Ne	uniler, ller, ller, ller, sche ffat nte ore rela rris yer llig rra lsor lsor	er, H. Sa Ell, Sa ith, Jo ith, A. A., A., A., A., A., A., A., A., A.,	H. H. W. Mue George G. h. J. C. B. V. C. M. H. A. F. V. O. A.	J	G. Ne	Wah Cas Elle N Ha rand W Roc Biss Lat Scr rand Dick Bor	Oakes peton selton endale dilnor crosby zelton Forks kford arpio Fargo narck ngdon anton Forks cinson tineau Minot Nome
**	Me Mil Mil Mil Mo Mo Mo Mu Mu Ne Ne Ne	uniler, ller, ller, che ffat ore ore rela rra us, cht llsor lsor lsor sse, ve,	er, H. Sa ell, G ith, Jond, A. L., W wey, L. W. S. H.	H. H. W. Mue George G. Shn J. C. B. V. M. A. F. V. Ooc A. E	J	G. G	Wah Cas Elle Ha rand W Roc Lan Scr rand Dick Bot	Oakes peton selton selton Allnor Trosby zelton Forks kford arpio Fargo marck ngdon anton Forks inson tineau Minot Mome Minot
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<b>★</b> ★	Mei Mili Mili Mo Mo Mo Mu Mu Mu No No No No No No No No No No No No No	uniller, ller, ller, ller, ller, ller, ller, ller, che ore ore relative rriss yer. lliggras, we, choleker erliress!	er, H. Sa H. Sa H. J. Sa H. A. Sa H.	H	J	G. Ne	Wah Casa Elleke Flace A Casa Elleke Roan C Biss Lau Ser G Bott Bott  Ma Jame Biss Wah	Oakes peton selton selton midale lilnor rosby zelton Forks kford arpio Fargo marck igdon anton Forks inson tineau Minot Fargo Fargo marck peton fargo
<b>★★</b>	Mei Mill Mill Mill Mill Mill Mill Mill M	uniller, ller, lle	er, H. Sa H. Sa H. A. S.	H W. mueo Geoorg Shn J. C. B. V. M. A F W. C. H. A. C. A. W. C. R. I. T. Tryg	J	G G	Wah Casa Elle N Cas Elle R R Cas R Cas	Oakes peton selton selton selton fendale filnor crosby zelton Forks kford arpio Fargo narck igdon anton inneau Minot Forks inson tineau Minot Fargo fargo marck pargo fargo marck fargo marck fargo fargo moan forks inson tineau Minot forks inson tineau Minot Fargo Mome Minot Fargo Mome fargo marck peton fargo Mott
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**	Mei	uniler, ller, ller, ller, ller, stephen ffat ore ore rela rris yer, llig rra us, cht lsor sse, rels rie sse ker erlir essl rie ens mei nel ens	er, H.H. Sal, G.	H. H. W.	J	G G	Wah Casa Ellele M Cas Ellele M Ellele Biss M A Biss  Biss  Cas A Biss  Cas Biss  Cas Biss  Cas Biss  Cas Biss  Cas Biss  Cas Biss	Oakes peton selton selton selton rosby zelton Forks kford arpio Fargo narck igdon anton inneau Minot Fargo Indan stown Fargo Indan I
**	MeillMill Mood on Meill	uniller, ller, ller, tcheinter ore ore relation llsor	er, H.H. Sall, G. St. St. St. St. St. St. St. St. St. St	H. H. W. H. H. W. George G. J. C. B. V. M. J. C. B. V. M. A. F. T. W. S. T. L. S. T. L. S. T. L. S. T. C. S. T.	J	G G G	Wah Casa Ellele Me The control of th	Oakes peton selton selton selton filnor rosby zelton Forks kford larpio Fargo narck narck narck narck narck minon forks sinson tineau Minot Fargo Minot Fargo Mott Minot narck Fargo Minot Narck Jardo Minot Narck Jardo Minot Jardo Minot Jardo Jardo Jilton Minot Jisbon
**	MeillMill Mood Mood Mood Mood Mood Mood Mood Mo	uniller, ller, lle	er, H.H. Sall, G., Ind., A.L., A., V. S., S., S., R. I., I., I., I., I., I., I., I., I., I.	H. H. Wungeong G. H. J. C. B. W. M. J. C. B. J. C. M. H. A. F. W. M. B. I. L. T. Tryg L.	H. W AA Irow	G G	Wah Casa Elle N Ha rand W Roc Bissi Lat Lat Bot Dick Bot  Ma Jame Biss Wah  I I I I I I I I I I I I I I I I I I	Oakes peton selton selton filnor rosby zelton Forks kford larpio Fargo narck nanton Forks sinson timeau Minot Fargo Minot Fargo stown Minot Mome Minot Stown Minot
**	Mei Mill Mill Moo Moo Moo Moo Moo Moo Moo Moo Moo M	uniller, ller, lke	er, H.H.Sal, Gh, J.M. A.L., K. S.	H. H. Wuegeorg, M. J. C. B. V. M. A. F. T. C. S. C. L. S. C. S.	J. Il Irge Il IRGE IRGE IRGE IRGE IRGE IRGE IRGE IRGE	G G G	Wah Casa Ellele M Cas Ellele M Cas Ellele M Cas Ellele M Cas Elsis Frand Dick Bor Frand	Oakes peton selton selton selton rindale filinor rosby zelton Forks kford arpio Fargo narck igdon anton Forks cinson tineau Minot Nome Minot Fargo narck peton Fargo intenden Fargo intenden for

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Perrin, E. D.	Bismarck
Pierce, W. B	Bismarck
Pray, L. G	Fargo
Quain, E. P	Eugene, Ore.
Quain, rannie D.	Grand Forla
*Radl Robert R	Riemarch
Ramstad, N. O.	Bismarck
Rand, C. C	Grafton
Ransom, E. M	Minot
★Ransom, H. R	Grand Forks
Ray, R. H	Garrison
Reed, Paul	Rolette
Reichert, Fl. L	Dickinson
Rica Paul F	wanpeton Solom
Richter, E. H.	Hunter
Roan, M. W.	Bismarck
Robertson, F. O.	Grand Forks
Rodgers, R. W	Dickinson
Rollefson, C. I	Jamestown
Rosenberger, H. P.	Bismarck
Kostel, Hugo	Fargo
Rowa P H	Jamestown Minor
Rund H O	Grand Forke
Ruud, M. B.	Grand Forks
Salomone, E. J	Elgin
Sand, O	Fargo
Savre, M. T	Northwood
*Schatz, G	Fargo
Schoregge, C. W.	Bismarck
Schumacher, IV. W	/ Hettinger
Schwinghamer E	T rettinger
Denninghamer, D.	New Rockford
Sedlak, O. A	Fargo
Seibel, L. J	Harvey
Saiffart G S	
Semen, G. S	Minot
Sihler, W. F.	Minot Devils Lake
Sihler, W. F. *Silverman, Louis	Minot Devils Lake Grand Forks
Sihler, W. F	Devils Lake Grand Forks Fargo
Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skoybolt, H. T.	Minot Devils Lake Grand Forks Fargo Fargo Williston
Sihler, W. F.  Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith. C. C.	Minot Devils Lake Grand Forks Fargo Williston Mandan
*Silverman, Louis  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton	Devils Lake Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake
Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake
Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.	
*Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Killdeer Minot
Perrin, E. D. Pierce, W. B. Pray, L. G. Quain, E. P. Quain, Fannie D. Quale, V. S. *Radl, Robert B. Ramstad, N. O. Rand, C. C. Ransom, E. M. *Read, Paul Reichert, H. L. Reiswig, A. H. Rice, Paul F. Richter, E. H. Roan, M. W. Robertson, F. O. Rodgers, R. W. Rollefson, C. I. Rosenberger, H. P. Rostel, Hugo *Roth, J. H. Rowe, P. H. Ruud, H. O. Ruud, M. B. Salomone, E. J. Sand, O. Savre, M. T. *Schatz, G. Schoregge, C. W. Schumacher, N. W. Schumacher, Wm. Schwinghamer, E. Sedlak, O. A. Seibel, L. J. Seiffert, G. S. Sihler, W. F. *Silverman, Louis *Sinner, B. L. Skelsey, A. W. Skovholt, H. T. Smith, C. C. Smith, Clinton Smith, J. A. Smith, O. S. Sorenson, A. R. Sorkness, J.	Minot   Devils Lake   Grand Forks   Fargo   Fargo   Williston   Mandan   Devils Lake   Minot   Killdeer   Minot   Jamestown   Jamestown   Jamestown   Minot   Mi
*Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.	Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Killdeer Minot Jamestown Dickinson
*Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spear, A. E.  Spielman, G. H.	Minot
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*Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spear, A. E.  Spielman, G. H.  St. Clair, R. T.  Stafne, W. A.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Minot Killdeer Minot Jamestown Dickinson Mandan Dickinson Fargo
*Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spear, A. E.  Spielman, G. H.  St. Clair, R. T.  Stafne, W. A.  Stickelberger, J. S.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Minot Killdeer Minot Jamestown Dickinson Mandan Northwood Fargo
*Silverman, Louis  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spear, A. E.  Spielman, G. H.  St. Clair, R. T.  Stafne, W. A.  Stickelberger, J. S.  Stokes, G. P.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Minot Killdeer Minot Jamestown Dickinson Mandan Northwood Fargo Oberon Streeter
*Silverman, Louis  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spear, A. E.  Spielman, G. H.  St. Clair, R. T.  Stafne, W. A.  Stickelberger, J. S.  Stokes, G. P.  Stolinsky, A.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Minot Killdeer Jamestown Dickinson Mandan Northwood Fargo Oberon Streeter Boise, Idaho
*Sinler, W. F. *Silverman, Louis *Sinner, B. L. Skelsey, A. W. Skovholt, H. T. Smith, C. C. Smith, Clinton Smith, J. A. Snith, O. S. Sorenson, A. R. Sorkness, J. Soules, M. E. Spear, A. E. Spielman, G. H. St. Clair, R. T. Stafne, W. A. Stickelberger, J. S. Stokes, G. P. Stolinsky, A. *Stone, Oral H., Jr. Stratte I. J.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Minot Killdeer Minot Jamestown Dickinson Mandan Northwood Fargo Oberon Streeter Boise, Idaho Grand Forks
*Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spear, A. E.  Spielman, G. H.  St. Clair, R. T.  Stafne, W. A.  Stickelberger, J. S.  Stokes, G. P.  Stolinsky, A.  *Stone, Oral H., Jr.  Stratte, J. J.  Stratte, J. J.  Strattes, E.	Minot Devils Lake Grand Forks Fargo Fargo Williston Mandan Devils Lake Minot Killdeer Minot Jamestown Dickinson Mandan Northwood Fargo Oberon Streeter Boise, Idaho Bottineau Grand Forks Rismarck
*Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spear, A. E.  Spielman, G. H.  St. Clair, R. T.  Stafne, W. A.  Stickelberger, J. S.  Stokes, G. P.  Stolinsky, A.  *Stone, Oral H., Jr.  Stratus, F. B.  Swanson, J. C.	Minot Devils Lake Grand Forks Fargo Fargo Fargo Williston Mandan Devils Lake Minot Killdeer Minot Jamestown Dickinson Dickinson Mandan Northwood Fargo Oberon Streeter Boise, Idaho Bottineau Grand Forks Bismarck Fargo
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Sihler, W. F.  *Silverman, Louis  *Sinner, B. L.  Skelsey, A. W.  Skovholt, H. T.  Smith, C. C.  Smith, Clinton  Smith, J. A.  Smith, O. S.  Sorenson, A. R.  Sorkness, J.  Soules, M. E.  Spielman, G. H.  St. Clair, R. T.  Stafne, W. A.  Stickelberger, J. S.  Stokes, G. P.  Stolinsky, A.  *Stone, Oral H., Jr.  Stratte, J. J.  Stratte, J. J.  Strauss, F. B.  Swanson, J. C.  *Swingle, A. J.  Tainter, Rolfe  Thompson, A. M.  Thorgrimson, G. G.  Timm, J. F.  Toomey, G. W.  Tompkins, C. R.  Tronnes, Nels  Urenn, B. M.  Vance, R. W.  Van Houten, J.  Van Houten, J.  Van Houten, R. W.  Veitch, Abner  Vigeland, J. B.  *Vinje, Ralph	Dickinson Dickinson Mandan Northwood Fargo Oberon Streeter Boise, Idaho Bottineau Grand Forks Bismarck Fargo Mandan Fargo

Vinje, E. G	Beulah
Vinje, Syver	Hillsboro
*Vollmer, F. J	Grand Forks
Vonnegut, F. F.	Linton
Waldren, G. R	Cavalier
Waldren, H. M.,	Jr Drayton
Waldschmidt, R.	H Bismarck
Wall, W. W	Minot
Walibank, W. L	San Haven
Watson, E. M.	
Weed, F. E	

<sup>\*</sup>In Military Service

*Weible, Ralph D	Farge
Welch, W. F	
Westervelt, A. E	
Westley, M. D	
Weyrens, P. J.	
Wheeler, H. A	
Wheelon, F. E.	
White, R. G	
Wicks, F. L.	
Williams, M 1	
*Williams, M. F	

Winn, W. R. Fargo
Witherstine, W. H. Grand Forks
Wold, M. D. Maddock
Wolfe, F. E. Oakes
Wood, W. W. Jamestown
Woodhull, R. B. Minot
Woodward, F. O. Jamestown
Woutat, P. H. Grand Forks
Wright, W. A. Williston
Yeomans, T. N. Minot
Youngs, N. A. Grand Forks

#### PRESIDENTIAL ADDRESS\* Dr. F. L. Wicks

Valley City, North Dakota

Members of the North Dakota State Medical Association:

During the past year it has always been in my memory that, but for an act of Providence, your presiding officer would have been Dr. A. O. Arneson of McVille.

Here was a man fittingly recognized by his colleagues for his great contribution to the welfare of his profession.

He was a man of high professional attainments; a legislator of integrity; held in the highest esteem by his constituents and elected to office by the votes of very many of unlike political faith.

It has been my privilege to talk to many of his former patients and several remarked that "you were half well when he entered your sick-room." Here then was a man of scientific medicine who had not neglected to practice also, the art of medicine.

Dr. Arneson would have brought to the office great wisdom and splendid leadership, so greatly needed in these strenuous times for our profession.

No apology is made for devoting some time to elementary things: to affairs pertaining largely to our own state; to public relations, and a few suggestions.

All members of the profession may well take pride in the glorious chapter of medical history now being written by their colleagues on both the home and war fronts. All are familiar with pertinent statistics.

Those at home, though diminished in numbers, have made a full and splendid contribution to the health care of the nation.

Those in service have established records never before equalled. The men who made these records were in most cases civilian practitioners or recent graduates, and the records are due not only to new drugs and new methods, but primarily to the ability, plus service training, of civilian doctors who volunteered for the need of their country.

In speaking of local conditions, it is not my intent to expand on the work of the committees of our association. They will make their own reports, and it is my suggestion that such reports be studied carefully. Committeemen do much valuable work for our profession, and they deserve much more gratitude than is usually given them.

\*Presented before the North Dakota State Medical Association, Sunday, May 20, 1943. The Governor's Health Planning committee: Last July 27th Governor Moses called together representatives of a large number of agencies to discuss health conditions in the state. Such action had been suggested in the article "The Need of Post-War Planning for Health and Medical Service in North Dakota" written some months previously by a representative of the Farm Foundation.

From the ranks of this group he then appointed members of a committee to be known as the State Health Planning committee. With its later additions the committee represents a fair cross-section of the population of the state.

Representatvies of the following various organizations, associations, bodies and groups now hold memberships on the committee: State Hospital association, Catholic hospital and rural educational groups, State Medical association, State Dental association, State Nurses association, State Health department, Farmers Union, Farm Bureau, Parent-Teachers association, State Federation of Labor, State Department of Public Welfare, University Medical school, Farm Security administration, the State Post-War Planning board, the Legislature, the North Dakota Educational association, and the Pharmaceutical association.

Mr. Haslerud, director of extension service at the State College, is chairman of the committee, and Mrs. Ingram was loaned to us by the Farm Foundation for the purpose of making a survey, and organizational and educational work. Both have given outstanding service in their respective capacities.

The purpose of the committee as stated by Governor Moses was to study health conditions, especially those of rural districts, to see if they could be bettered, and if they could be bettered to recommend what could be done toward that end.

This committee is an alert and intelligent group. The lay members have had plenty of experience in the discussion of health needs in their own organizations. Some of the members have, no doubt, known more about the contemplated plans of procedure than have the rest of us.

They are aware of the many unsanitary conditions on the farm; they are interested in the elevation of health standards; they favor health units, and would wish to see more of these established. They know that these

<sup>•</sup> Deceased

improvements take time, and therefore appreciate the urgent need to start on them as early as possible. They do not want doctors regimented. They would work for better facilities for medical practice in the smaller communities, and would like medical help closer at hand. They have not complained about the fees of physicians and have been concerned with the economic side of the picture only insofar as to urge that since we may all anticipate poor times again in the future we should now be planning for the aid necessary in such times. They feel that if federal aid is available we should, at least, be willing to receive and welcome it.

They realize that education and more education will be necessary and is indeed paramount if their constituents are to appreciate the value of health or to know the value of insurance as related to prepayment plans.

Although they of the committee and we of medicine have about the same goal regarding medical care, they would be willing to put any amount of heat under the profession if it would bring the desired result, and for this I would not blame them if by that means we could be assured of getting what all of us want. Unfortunately, perhaps, that method is not the solution.

Medical responses to their problems are not particularly popular with them because we cannot furnish at once more doctors and better facilities, and a satisfactory solution is therefore not forthcoming through us. They know full well the uneven distribution of physicians in our state. They would like to see this corrected. Like all lay groups, they may be offered poor advice, which may be accepted in all sincerity but prove to be of no particular advantage to them. Let us remember, however, that all lay groups hear more from politicians and agitators than from medical men.

The bill for licensure of hospitals was sponsored by the committee. The committee is vitally interested in any health legislation and ordered a letter of commendation sent to our association because of our action in bringing enabling legislation before the legislature.

The committee voted support for measures looking to the expansion of the University medical school.

A number of meetings have now been held. Medical opinions have been frankly expressed. Health statistics of our state, with comparison to those of other areas of the nation, have been submitted to the committee. The committee advises health planning committees for the counties of the state.

It would appear that the views of this committee represent fairly well the attitude of the laity in general toward medical care and the medical profession. It would be gratifying if it could be truthfully stated that the reputation of our profession were better than it is. It can be improved.

Hopeful signs for the future: All of us, doctors and public alike, are interested in anything which may offer a more optimistic perspective of medical care for the future. Hopeful indications are:

The return of our men from the services to their former or to other fields of practice within the state.

The fine spirit of co-operation between the Public Health department and the profession.

The possible procurement of equipment, including ambulances, in the post-war period.

The blood-plasma program as carried on by the public health laboratories, under the direction of Mr. Koons.

The proposed mobile tuberculosis x-ray unit sponsored by Dr. Campana of the Public Health department, Dr. Arnson, chairman of our committee on tuberculosis, and the state anti-tuberculosis association.

With more medical and technical personnel, the establishment of other public health units.

The eventual operation of a state medical service plan, as presented by our committee on economics, headed by Dr. Wright, and looking toward the softening of the expense-blow associated with catastrophic illnesses.

A more expansive program of education of the laity through proper medical sources and the public health department. (The public must be brought to realize that personal health is an individual responsibility. Each has the obligation, in his own best interests, to present himself for examination while doctors still have a chance to do their best for him.)

Refresher courses for those on the home front, and more extended graduate courses for those returning from the services.

The possible removal of restrictions regarding the number of doctors trained by hospitals, and the allowance through selective service for a greater number of high-type students to enter medical schools.

The benefits for those wishing to study medicine through the G. I. bill of rights.

The possible expansion of the state university's medical school, educating North Dakota students in North

Dakota, where they are more likely to locate.

The greater availability of penicillin and a host of other compounds and drugs now in the hands of research departments that by cutting short many illnesses will thereby reduce the incidence of hospital bed occupancy.

These are only some of the possibilities which offer hope for the future. To these can be added the greatest factor—the ever-growing desire of medical practitioners, regardless of reports to the contrary, to bring to their patients the very best medical care of which they are capable, and at the least possible expense.

Public Relations: Our profession has been challenged on many fronts, the past few years. Court proceedings against us and bills on medical care, presented by politicians, alone have done at least some harm to the reputation of the profession.

The answers which doctors offer appear in medical magazines and do not get the attention of the laity. The time is long overdue when medical opinions should be brought more directly to the public.

Some may feel that bills such as the Wagner-Murray-Dingel bill are dead, but one has only to study the bills presented before state legislatures, notably California's, to realize that this is no time for relaxation. Similar bills will again be presented, with delusive changes perhaps, but having the same deadly import for medical practitioners.

When the people at large hear of medical plans sponsored by politicians and brought forward by recognized leaders, they are inclined to believe that at last someone is working for their best interests. If they hear from doctors at all it is usually in opposition to such plans and only rarely do they get information as to just why doctors are opposed or why they take the positions they do.

If all doctors became vocal their combined voices would perhaps be weak compared to those of leaders who claim to represent the laity. While keeping the public informed of reasons for their opinions and actions, doctors must concentrate their efforts on legislators, both state and federal, on those whose votes make laws. Therefore an improvement in the reputation of the profession with the public is vital.

People at large appreciate anything which doctors do to provide them with high-type medical services. It is my belief that the public wishes to permit doctors to deliver their highest grade of medical care, and will not stand for too much interference if fully acquainted with facts. Medical men, by a firm and united stand, must prove to politicians, however, that control of our profession will not be allowed to pass to them.

It seems to me that the public could be respectfully asked to consider some of the following points, advanced not only as a right of the medical profession but also

as an obligation:

Over 60,000 of our most active members are now in the armed forces of our country. We at home have an obligation to these men away—to keep their profession, insofar as possible, as they knew it when they left for service. The men at war have nearly no opportunity at all to help formulate medical viewpoints on medical problems of national scope. In fairness they should have a voice in making decisions for the profession—should they not?

Politics and good medicine do not mix—they are incompatible. Plans which make for good politics may make for decidedly poor medicine. The public could be informed and legislators warned that it takes more than good equipment to deliver good medicine.

If private initiative and freedom of enterprise is even partially eliminated, much of professional value to the patient is destroyed. Under regimentation of doctors the quality of medical care will be poorer. The employer of the doctor must remain the patient, not the government. When doctors are regimented, so is the public.

Doctors must fight plans which they believe to be against the interest of their patients or be remiss in their

duties to the public.

It might be remembered that doctors, like farmers and possessors of risk money, are great gamblers and will gladly take their chances in the future as in the past, on poor crops, poor wages, and poor pay patients, and really prefer it that way.

Much is heard regarding the holding of bonds for the later purchase of commodities, but very little is heard from anyone about reserving a few bonds for a health

rainy-day.

The public could well be reminded of the many programs on which doctors already work,—at sub-standard fees. The public should know that unreasonable demands break down, rather than support, the efforts of

doctors. The laity might be asked:

- a) Is it wise to discard something proven to be the best, in order to take up something which others have found poor?
- b) Is it not strange that doctors have done so well in the interest of the public with a plan so inadequate that a few politicians, without aid of medical advice, can devise one so much better, and in short order?

c) Why should anyone believe that the same doctors, if employed by the government, would give better service than they do while on their own and with their own reputations to sustain in the various communities?

d) Doctors are busier than ever—is this then the time to add the burden of extra desk work demanded by

multitudinous blanks and reports?

The individual could well be told—insist that your doctor keeps his identity and you have the best chance of keeping yours, and of surviving longer. After all, doctors—not politicians—are called when a man is sick.

In the usual expense of extended illness the cost of hospitalization, nursing and diagnostic procedures are all said to be greater than the fees paid to doctors. Doctors, however, are asked to do something about this—and we are making the fastest progress possible.

There are already plenty of insurance plans available to care for the major expenses, hospitalization and nurs-

ing.

That there is a shortage of doctors, everyone knows, and most plans contemplated by politicians would need more doctors in their operation than are required by the present system of practice.

The patient should be most anxious to keep his doctor responsible directly to him, rather than to some bureau

in Washington.

Instead of worrying too much about the present value of medical care it might be more appropriate to worry about the type of medical care which would likely come as a result of the regimentation of medical practitioners.

A course whereby the laity is unhampered in the choice of physicians, doctors left in possession of self respect and in control of their own profession, presents now as formerly all the essentials for the greatest good for the greatest number.

North Dakota physicians will in no manner side-step their responsibilities in providing the best health care for

our citizenry.

Finally, might it not be of value to all of us of medicine, in the field of public relations, to strive toward that goal upheld by the Nestor of medicine, Sir William Osler, when he said: "I have three ideals. One, to do the day's work well and not to bother about tomorrow. The second ideal has been to act the Golden Rule, as far as in me lay, toward my professional brethren and toward the patients committed to my care. And the third has been to cultivate such a measure of equanimity as would enable me to bear success with humility, the affection of my friends without pride, and to be ready when the day of sorrow and grief came, to meet it with the courage befitting a man."

Suggestions: Secretary Larson has done splendidly in keeping the profession informed of current events and

trends through his news letter, sent periodically to the entire membership of our society. These should be continued.

Likewise it is my belief that lay individuals should be kept informed of suitable medical ideas and ideals through public print and radio, as frequently as found desirable. The public hears about our profession too little from its practitioners. Such publicity should come from official offices, or committees of the state association, and would be a helpful supplement to educational material sent out by our health department. A thoroughly informed public would soon respond with proper respect for medical affairs and opinions.

All agencies, associations and organizations which are with us in the fight to maintain freedom of enterprise in medical practice should have our full support.

Thought might be given to the advisability of encouragement in the formation of a women's medical auxiliary. Such bodies have national programs in their own rights, and it would seem, could be beneficial in public relations, and especially in the physical fitness program, of which much will be heard in the future.

A lessening of the burden on our overworked secretary is necessary. All members realize that Dr. Larson possesses exceptional ability for this office. Most of us know that this ability operates in all instances where the association is concerned. Only those who serve as president know, however, of the great amount of work which must receive his attention. This means much sacrifice to personal interests. As the equation now stands, I am sure we are much in his debt. We cannot reasonably expect long continuance of the present status. A serious study of means to alleviate this situation is suggested.

It is essential that the fine spirit of fraternity existing among the members of our association continue, with the integration of service doctors back into civilian practice.

All support possible should be given to the public health department, the anti-tuberculosis association, the American cancer society, and other like groups.

It should be brought to the attention of the councillors, officers and past officers, that they could help much in the work of the house of delegates by attending its meetings. They have the privilege of the floor at the present time. Councillors serve for three years and most of them for many more. Many are regular attendants. It is suggested that a study be made of possible ways of stimulating a greater attendance by these experienced men.

May I express my appreciation, on behalf of the association, for the valuable work of the other officers, our efficient secretary, Dr. Larson; our treasurer, Dr. Wood; chairman of the council, Dr. Ramstad; the speaker of the house of delegates, Dr. Moore; councillors and delegates; the committeemen; and not forgetting the rank and file of the membership of our association, who truly represent the profession and therefore share in its leadership.

Now, my sincere personal thanks for the privilege of serving the association during the year. Thank you for your indulgence.

## Book Reviews

Clinical Lectures on the Gallbladder and Bile Ducts, by SAMUEL WEISS, M.D., F.A.C.P., clinical professor of gastro-enterology, New York Polyclinic medical school and hospital; gastroenterologist, Jewish Memorial hospital, New York; consulting gastroenterologist, Beth David hospital, Long Beach hospital, etc., with contributions by ERNEST E. SMITH and HARRY M. EBERHARD. Chicago: The Year Book Publishers, Inc., 504 pages with 125 illustrations, 1944, \$5.50.

This volume is the result of a vast clinical experience and many years of graduate teaching. It presents in a very readable and well-organized manner a practical guide to the diagnosis and treatment of biliary tract disorders. The relationship of biliary tract disorders is emphasized. The clinical, laboratory and radiographic phases in diagnosis of gallbladder and bile duct disturbance are thoroughly described and correlated for intelligent use by the practitioner. The chapters on medical management are on pre- and postoperative care suggest therapy which can be adapted to individual case variation and which relies on the judgment of the physician for whatever treatment is indicated.

This book should be of value to the general practitioner and surgeon, and to medical men interested in the roentgenographic and laboratory aspects of biliary tract disease.

Essentials of Body Mechanics in Health and Disease, by Joel E. Goldthwaite, M.D., Lloyd T. Brown, M.D., Loring T. Swain, M.D., and John G. Kuhns, M.D. Philadelphia: J. B. Lippincott Co., 337 pages, 1945, \$5.00.

This is the fourth edition of a book first published under the title of Body Mechanics in Health and Disease. The revised edition places more emphasis than the former editions on the prevention rather than the treatment of deformities due to faulty body mechanics and on the maintenance of physical fitness and health.

The first part of the book describes the various body types and the physiological differences found between the slender and the stocky types of individuals. The authors urge a broader understanding of anatomical and functional variations as a basis for evaluating pathological processes in any individual patient.

for evaluating pathological processes in any individual patient. The section on body mechanics per se is an excellent discussion, well illustrated with diagrams and x-ray photographs, of the manner in which the mechanical use of the body may affect the functioning of all of the organs of the body. The major portion of the book discusses diseases of the circulatory, gastrointestinal and nervous systems and the relationship of poor body mechanics to these disease conditions. The chapter on backache, one of the common complaints of many patients, should be extremely helpful to the physician in his attempt to determine the cause of the backache when due to faulty body mechanics.

Another chapter gives emphasis to geriatrics and the aging process in relation to the mechanics of the body. It should be of great interest, with the increasing age of the population and the necessity for a better understanding not only of the normal changes but also the pathological, which take place in the aging

The section devoted to the treatment of faulty body mechanics is well done. The exercises given are clear, well illustrated and should be very useful to every physician. There is a very helpful chapter on the mechanics of the foot with suggested exercises to overcome the more common faults.

Unquestionably there will not be complete acceptance of the relationship of faulty body mechanics to certain diseases such as hypertension and angina pectoris until such time as more scientific evidence supports this idea. One gets the impression that the authors are somewhat over-optimistic in some of their statements. However, the book as a whole is well written, well illustrated and a real contribution in its field. Little is taught in the ordinary textbook of medicine of the importance of proper functioning of the skeletal and muscular systems to health. For that reason this book is one which should supplement the medical texts in the library of every physician.



Serves the MINNESOTA, NORTH DAKOTA,

Medical Profession of SOUTH DAKOTA AND MONTANA

Official Journal of the American Student Health Assn., Great Northern Railway Surgeons' Assn., Minneapolis Academy of Medicine, Montana State Medical Assn., North Dakota Society of Obstetrics and Gynecology, North Dakota State Medical Assn., Northwestern Pediatric Society, Sioux Valley Medical Assn., South Dakota Public Health Assn., South Dakota State Medical Assn.

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#### SISTER KENNY—FIVE YEARS AFTER

In another place in this issue the JOURNAL-LANCET publishes a report on five years experience with the treatment of infantile paralysis under the personal supervision of Miss Elizabeth Kenny. Unfortunately very few objective data are given in this paper, but it does include figures for mortality rates and for severe residual paralysis, as well as some other valuable information. The author of the paper, Dr. John F. Pohl, has been intimately concerned with the work of the Kenny Institute as its principal orthopedist.

Miss Kenny treated 364 patients during the period 1940 to 1944. Of these, 23 died while under her care, a significant mortality-rate that has not been emphasized by Sister Kenny. Dr. Pohl says regarding the fatality rate that a little more than half of the fatal cases were placed in a respirator before death, and further that "no patient survived being placed in the respirator." It may fairly be questioned whether the Kenny patients may not have been nearly moribund before the respirator was employed. No data are provided on the point.

Dr. Pohl states that of the 341 patients surviving, sixteen per cent or 55 have "extensive residual paralysis." Thus it is admitted that twenty-two per cent of Miss Kenny's patients died or were extensively paralyzed. This is an account slightly different from that which one reads in the newspapers. Dr. Pohl has, in describing some of the results of the Kenny treatment, unwittingly perhaps, performed a real service to humanity in exposing these figures to public view. There is nothing unusual in a treatment for infantile paralysis which results in either death or "extensive residual paralysis" in more than one case out of five. Furthermore, Dr. Pohl states that 12 of the above patients require crutches, 8 require braces, and 10 need a cane.

As regards the degree of residual paralysis these figures are not superior to the results obtained by others. For example, Lenhard 1 reports that of 130 cases in Baltimore in 1941, all of whom were treated by conventional procedures, twenty patients, or 16 per cent, have moderate to severe residual paralysis. An additional number had slight paralysis, as was also the case in the Kenny series. Only two patients died in the Baltimore series.

In view of these figures it is quite surprising that Dr. Pohl indicates in another part of his paper that since the advent of Sister Kenny, the number of children in Minneapolis so crippled by poliomyelitis as to have to attend the public school for crippled children has been reduced to zero. Since by his own assertion sixteen per cent of cases are extensively paralyzed, many to the extent of requiring braces and crutches and some "with practically complete abdominal and spinal paralysis as well as complete paralysis of both legs," is it possible that a psychological factor has a bearing here? Anyone who has seen Miss Kenny work will testify that her psychological influence over her patients is great enough to determine their behavior against great odds.

In fairness, it should be said that although Dr. Pohl presents no objective data on the point, a number of competent observers are agreed that Sister Kenny's physical therapy techniques result in a satisfactorily low incidence of deformity. If Miss Kenny were satisfied with credit for having developed and used a method of physical therapy which although not unique is highly successful in this regard there would be no controversy.

However, Dr. Pohl places the greatest stress upon the validity of Miss Kenny's new "concept" of the disease. According to him, "the most significant point in Miss Kenny's work is that of a new concept of the neuromuscular symptomatology of the disease . . . (which) is primarily and most importantly an affection of the peripheral structures, principally the muscles and their fascial coverings but including the skin and subcutaneous tissues, and that disturbing functional changes in the central nervous system occur secondarily."

Thus Dr. Pohl subscribes to the Kenny notion that poliomyelitis is primarily a disease of skin, connective tissue, fat and muscle, and that the nerve degeneration results secondarily through "alienation" and "incoordination." He admits that this new "concept" of poliomyelitis "would seem to place an indigestible issue" before any scientific medical investigator, whom he characterizes as "orthodox."

The so-called "Kenny concept" of poliomyelitis is so untenable in view of the enormous mass of neuropathological and neurophysiological evidence which anyone who will take the trouble to read scientific medical literature or make a scientific study can verify, that it would not be worth refuting were it not for the international publicity which has been given to the view. There is actually no valid evidence in medical literature indicating that poliomyelitis "is principally peripheral in nature." Instead, the literature is full of convincing evidence to the contrary.

The "Kenny concept" has been built up to fictitious importance largely by salesmanship and wishful thinking. It is to be hoped that the public which has taken an interest in Miss Kenny's publicized career may finally realize that under her care during a five year period in

spite of her "concept" and treatment, about six and a half per cent of patients have died, and sixteen per cent have "extensive residual paralysis," varying in degree from virtually complete incapacity to states requiring braces, crutches or canes for locomotion.

Science is the search for truth. It is a misfortune when anything is permitted to confuse that search. It is doubly unfortunate in the field of medicine because so many unhappy victims of disease are led to search for the impossible because of such confusion. It is to be hoped that some day the public will be wise enough and sufficiently informed to refuse to be misled by unsound theories and "concept." In the meantime it is the duty of honest physicians to oppose and expose false prophets irrespective of their sincerity. Fidelity to sound science is not a glamorous pursuit, nor a financially lucrative one, but it does enhance one's self-respect, and in the long run brings the respect of the world. Notoriety based on false premises is fraudulent and short-lived. This is true even when the deception is in the first instance self-deception.

Maurice B. Visscher Jay A. Myers

<sup>1</sup> Lenhard, Raymond E.: The results of poliomyelitis in Baltimore. Journal of Bone and Joint Surgery 25:132-141, 1943.

"When there has been clear failure to employ reliable methods and to justify conclusions and when in consequence error is slipping into the 'beautiful edifice of scientific truth,' a crusading spirit seems to me appropriate, expressed in acts to protect that edifice."—(From The Way of an Investigator, by Walter B. Cannon, M.D.)

#### CAPITAL PUNISHMENT FOR CAPITALS

A Gallup poll on the use of capitals would surely prove at least one point—that nearly everyone has a capitalizing rule of his own, a rule compounded of his egoistic drive, the importance he ascribes to the Word, his feeling for the aesthetic appearance of his page and his vague memories of what he was taught in grade school.

Such is the conclusion of your harassed editor after hours spent in searching for an ironclad rule wherewith to uphold the monthly slaughter of capitals that takes place in the JOURNAL-LANCET'S editorial office. For capital usage, it seems, is a purely personal matter.

Turn to Webster's New International and you will find most of the school teachings of your youth confirmed. But newspapers, who stand no nonsense from their writers, pooh-pooh such old-fashioned notions and in their style-sheets issue directions widely differing from old Noah's. To the Gas-Fitters Union, for example, Webster gives the dignity of three capitals; one is all the newspapers grant; for newspapers, the words county, association, society, and the like, following the name, must be in lower case, while to Webster all these warrant caps. Disturbed, but still hopeful, we turn for light to Dr. Fishbein's admirable Medical Writing. Dr. Fishbein, we learn, goes along pretty well with the newspapers, but makes one vital exception. You have guessed it. The American Medical Association, its annual sessions, editor,

fellows, and indeed all that or who pertains to this august body must be capitalized. But for the rest of us it is the humble lower case. The Mayo Foundation too has a pamphlet for its writers and believe it or not, the Mayo Foundation, with no apology to Dr. Fishbein, holds that its Fellows are fully as worthy of caps as are those of the A.M.A.

A frantic search among various medical journals results only in a confusion that grows more and more confounded. Not only is there here no agreement on this vital issue, but often in the same magazine upper and lower case sport through the pages with regard apparently only to the whims of the authors. At this tense moment Robert S. Gill's fine little book, The Author, Publisher, Printer Complex, comes to the desk. We read and breathe a sigh of relief. With Mr. Gill we are wholeheartedly agreed. Says he, with a hint that he, too, has shared our desperation, "As to the capital, if there is any doubt, put it 'down'." Like the kitten pursuing its tail, like the Red Queen running on one square, we have arrived just where we started.

We confess that ours is largely an aesthetic prejudice. Too liberal a sprinkling of capitals on a page ptoduces not only a messy but a distracting effect, too like the letters we have all received in which every other word is underlined, each sentence driven home with an exclamation point. So, until the grammarians offer us a precise rule we shall blithely follow our chosen course, borrowing at will from the best of Fishbein, the Mayo Foundation and newspaper usage and slaughtering at least 50 per cent of the capitals that come our way. Some day we will formulate our own rule and publish it on this page. In the meanwhile, contributors, remember, "if there is any doubt, put it 'down'."

M.U.

## MEET OUR CONTRIBUTORS

Dr. John Florian Pohl, Minneapolis, after graduating in medicine from the University of Minnesota, prepared for his specialty, orthopedic surgety, by graduate work at Harvard university and the University of Manchester, England. He is clinical assistant professor of orthopedic surgery at Minnesota's medical school, and attending orthopedic surgeon at the Minneapolis General hospital, Glen Lake sanatorium, Michael Dowling school for crippled children and the Elizabeth Kenny institute. He is a member of local and state medical societies, American academy of orthopedic surgeons, and diplomate, American board of orthopedic surgeors, and diplomate, American board of orthopedic surgery.

Dr. F. L. Wicks, Valley City, North Dakota, graduated from the Keokuk medical college, C.P.& S., and has a degree in both pharmacy and medicine. He has taken many courses in ophthalmology and otolaryngology. He has served as president and secretary of the North Dakota academy of ophthalmology and otolaryngology, is a fellow of the American Medical Association, and a member of the Cheyenne medical society. He is the author of "Twenty-five Years of Ophthalmology in North Dakota" and of "Your Eye—! Light on Sight."

Dr. Joseph Alexander Holmes, practiting surgery in Boston and residing in Cambridge, Massachusetts, is a 1935 graduate of Harvard Medical school and a fellow of the American College of Surgeons. It is believed that he is still in the South Pacific theater.

## MAJOR PROVISIONS OF THE WAGNER-MURRAY-DINGELL BILL

Introduced May 24, 1945

Hospital and health center construction grants and loans to the states.

Grants to states for public health services.

Grants to states for maternal and child health and welfare services.

Comprehensive public assistance program.

A national system of public employment offices.

A national social insurance system consisting of:

- Prepaid personal health insurance. This provides for insurance against medical care costs. It is not socialized medicine. It does not do away with voluntary plans.
- Unemployment and temporary disability insurance benefits. These provide for benefits of \$5 to \$30 per week up to 26 weeks. If funds are adequate, unemployment benefits up to 52 weeks are provided
- Retirement, survivors' and total disability insurance benefits: Provide for more liberal benefits (\$20 to \$120 a month) than under the existing law.
- 4. National social insurance trust fund.
- Credit for military service: \$160 wages credited for each month of military service.
- Coverage provisions: Extends coverage to about 15,000,000 additional persons, including farmers, domestic workers, workers in non-profit organizations, seamen and the self-employed.
- Social insurance contributions: 4 per cent each from employers and employees. A government contribution, when necessary, is authorized.
- 8. General provisions: Judicial review and a national advisory council. The bill also provides funds for medical and vocational rehabilitation of disabled persons entitled to disability benefits, to be handled by social security board, surgeon general and office of vocational rehabilitation.

Physicians should obtain copies of this proposed act and study carefully all of its provisions. Senator Wagner consulted with the American Federation of Labor, the Congress of Industrial Organizations, the Physicians Forum, the Committee of Physicians for the Improvement of Medical Care and the National Lawyers Guild, in obtaining suggestions for modification of his previous version. He did not consult with the American Medical Association.

#### Examinations in Pediatrics

The American Board of Pediatrics announces that its fall written examination will be held locally under a monitor, October 19. The oral examination will be held in New York, December 7 or 8. Dr. C. Anderson Aldrich, 115½ First Avenue S.W., Rochester, Minn., is secretary of the board.

## News Items

Seventeen young people from five counties in South Dakota were examined in the biennial free clinic for crippled children held in Yankton on June 6. Dr. G. E. VanDemark of Sioux Falls, orthopedist, and Dr. Goldie Zimmerman, Sioux Falls pediatrician, made the examinations. Dr. A. Triolo of Pierre attended as director of the crippled children's division of the state board of health. These clinics are sponsored by the South Dakota Benevolent Protective Order of Elks and the state board of health, are entirely free and are held for crippled children to the age of 20. Last year fifteen such clinics were held in the state and several hundred children are now receiving treatment as a result.

The organization of the Black Hills Camp and Hospital Council of the American Red Cross was completed June 12 at the Rapid City, South Dakota, army air base. The purpose of the council is to coordinate with Red Cross field directors in providing personnel, equipment and recreation for the camps and hospitals needing such.

Dr. William Calvert Chaney of the Tennessee medical association and Dr. William P. Herbst, Jr., of the medical society of the District of Columbia, two former fellows in the Mayo Foundation during the years 1919-1924, have recently been elected presidents of their respective medical societies.

Dr. F. L. Wicks, president of the North Dakota medical association, and Dr. G. F. Campana of the North Dakota department of health are serving as members of the North Dakota planning committee which, coordinated with the National Commission on Hospital Care, is now taking the first inventory ever made of the state's hospitals. (See July editorial). Representing the university is Dr. H. E. French, dean of the school of medicine.

Drs. Edythe Hershey and B. K. Kilbourne, Helena, have been appointed by the governor members of the new hospital survey commission. Montana legislators have passed a bill providing for a hospital inventory in that state.

The two Albert and Mary Lasker Foundation awards have recently been announced for the second successive year. The awards of \$500 each are for significant contributions to the improvement of maternal health care and for research in human fertility. Further information may be had by writing to the Medical Committee, Planned Parenthood Federation of America, 501 Madison Ave., New York 22, N. Y.

The Massachusetts Medico-Legal society will hold its fourth annual seminar between October 1 and 6. It will include a six-day program of lectures and demonstrations having to do with death-investigation in the interests of public safety. For further information write to the society, 25 Shattuck St., Boston, Mass.

Dr. William Duncan of Webster, South Dakota, was installed president of the South Dakota state medical association at the annual convention. Dr. F. S. Howe of Deadwood is president-elect.

Dr. William Henry Phillips was honored officially in Jordan, Minnesota, by a "Phillips day" sponsored by the Jordan Commercial club and the Business and Professional Men's club to commemorate the 50th year of the doctor's service to that city. Former patients from all over the state attended the festivities that included a dinner, a meeting in the high school attended by more than five hundred persons, a band concert and the presentation of a generous sum of money. Dr. Phillips was graduated from the University of Minnesota medical school in 1894. He has served as mayor of Jordan and is a prize-winning grower of flowers in addition to being one of the busiest and best beloved doctors of the state.

Dr. T. Jones after more than a year's illness has recovered and returned to practice in Chamberlain, South Dakota.

Dr. F. E. Boyd after an absence of three years during which he served on the medical staff of the army air force, has returned to Flandreau, South Dakota, and resumed practice here.

Dr. William T. Ferris, Chamberlain, South Dakota, has returned to his home town to resume practice there again. He was obliged to leave the city because of illness.

Dr. Jack Hays, formerly practicing in Mammoth, Montana, has returned to Livingston, Montana, and is now associated with Dr. P. L. Greene. Dr. Hays has served in the army medical corps since 1938 and saw service in both Africa and Italy as a captain.

Dr. J. A. Mueller has opened an office in Lewistown, Montana. Dr. Mueller comes from Fenton, Iowa.

Major David W. Hilger, MC, of Rochester, Minnesota, formerly neuropsychiatry consultants division, has been assigned to Fitzsimmons General hospital, Denver, Colorado.

Lt. (j.g.) Austin M. McCarthy, former resident surgeon at Minneapolis General hospital and now a member of the medical staff of the Relief, a hospital ship, has been commended by his commanding officer for work in helping evacuate more than 3,000 wounded Americans from Okinawa.

Dr. T. Q. Benson, city health officer of Grand Forks, North Dakota, has been conducting health examinations for pre-school children. This plan was adopted in 1944 and many defects were brought to light during the first examination last year. The idea is to have as many children as possible examined so that they may have the physical defects corrected insofar as possible before attending school.

Dr. J. A. Muggly of Madison, South Dakota, was named chairman of the state Foundation for Infantile Paralysis at its annual meeting held in Madison June 20. He succeeds Dr. D. S. Baughman.

Dr. D. S. Baughman and Miss Nancy Baughman of Madison, South Dakota, have been in the east since June 15th, visiting a son Richard (intern) and daughter Mary Lou (cadet), both in Philadelphia General hospital. Richard went into the army July 4. They visited also another daughter, Shirley. Dan Baughman, a son, is missing in submarine service, but there is hope that he may be safe.

Eighty-one children were examined in Grand Forks county, North Dakota, at the end of the child health conferences in that county. Dr. Robert Sr. Clair conducted the Northwood clinic, Dr. C. O. Haugen the Larimore clinic, Dr. F. O. Robertson that for Gilby, Dr. W. C. Dailey for Inkster, and for Nisgara. Clinics were sponsored by the state department of health, county health department and local civic organizations.

Dr. N. A. Kaa of Corvallis, Montana, has been appointed county health officer. Dr. R. E. Brogan, former Deer Lodge physician, has moved to Billings. He will continue to handle the contract work for the mines at Roundup.

Dr. J. Nelson Ewbank has resigned his position as acting superintendent of Sand Beach sanatorium at Lake Park, Minnesota, to take up a similar position in his home community of Urbana. Illimois.

Dr. Arthur H. Wells, head of the pathology department at St. Luke's hospital, Duluth, was elected first vice president of the Minnesota cancer society to fill the vacancy caused by the death of Dr. Max Alberts.

Dr. Neil M. Leitch, formerly of Warroad, Minnesota, has established offices in the Buffalo Block, Kalispell, Montana.

Dr. L. H. Winer, specialist in skin diseases, 505 Medical Arts building, Minneapolis, and associate professor in the department of dermatology of the University of Minnesota Medical school, is removing to Beverly Hills, California, where his address will be 415 North Camden Drive.

Surveys to determine the shortage of doctors and medical facilities in South Dakota have been undertaken by the South Dakota Health Planning committee. The actual work will be done by the extension service, farm security administration, and the South Dakota Nurses association.

Dr. Claude C. Kennedy, Minneapolis, state chairman of the Medical and Surgical Relief committee of Minnesota, has received word of the safe atrival in Ambositra, Madagascar, of a large shipment of sulfa and arsenic drugs sent in answer to a plea from the mother superior there. To date the national committee has forwarded \$729,455 worth of medical and surgical supplies to various parts of the world.

Dr. Sidney A. Cooney of Helena took over the presidency of the Montana State Medical association at the close of its annual meeting on July 15. Dr. Maurice A. Shillington of Glendive was named president-elect; Dr. Walter H. Stephan of Dillon, vice president; Dr. Ray F. Peterson of Butte was re-elected secretary-treasurer. Mrs. Irving J. Bridenstine of Terry was chosen president of the women's auxiliary.

## Necrology

Dr. Horace Newhart, 72, Minneapolis, Minnesota, died July 9 at the Northwestern hospital of cancer. Dr. Newhart's contributions to otology won for him an extensive reputation throughout the country. A professor of otolaryngology at the University of Minnesota, he had been president of national and local otological societies, a fellow of the American College of Surgeous, and a member of many national medical and honorary societies. He was largely responsible for establishing periodic hearing tests in the Minneapolis schools and in those of other cities.

Dr. H. H. Aldrich, 64, DeSmet, South Dakota, died June 16 of a heart attack as he was walking home from his office. He was born in Remington, Indiana, and graduated from St. Peters hospital, St. Peter, Minnesota, in 1902 and also from the Sioux City Medical school, Stoux City, Iowa, in 1908. He practiced at Roscoe and in various other parts of the state of South Dakota. Dr Aldrich had come to DeSmet but a few months ago from Wessington. His death leaves but two doctors in the county, none at all in its western half.

Dr. R. V. Overton, Winner, South Dakota, 65, died June 20, at St. Joseph's hospital, Sioux City, Jowa, from coronary thrombosis. A graduate of the University of Nebraska, he practiced in Gregory and Tripp counties from 1905. He was a counselor of the Rosebud district medical association and secretary of the Rosebud association at the time of his death and for a number of years preceding.

Dr. H. H. Brenner, 35, Minneapolis, was drowned in Detroit lake, July 5. Dr. Brenner was a graduate of the University of Wisconsin medical school and was on the staff of the General hospital.

Dr. D. F. Doyle, 75, Minneapolis, died of a heart attack July 5, as he was backing his car out of his garage.

### Classified Advertisements

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Aznoe's, established in 1896, has available a number of whe trained physicians (diplomates of the specialty boards, industrial physicians and surgeons, general practitioners, psychiatrists, tuberculosis specialists and residents). For histories, write Ann Woodward, Aznoe's-Woodward Medical Personnel Buteau, 30 North Michigan Ave., Chicago 2, Ill.

#### FOR SALE

Medical outfit in southeast North Dakota, community of 2000 population. For particulars address Box 823, care of this office.

## LIST OF PHYSICIANS LICENSED BY THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS MAY 19, 1945 .

#### APRIL EXAMINATION

Name	· School	Address
Anderson, James Robert	Northwestern, M.B. 1943, M.D. 1944	Mayo Clinic, Rochester, Minn.
Ashley, William Francis	U. of Illinois, M.D. 1943	Mayo Clinic, Rochester, Minn.
Ashman, Hubert Chidester	La. State U., M.D. 1943	_Mayo Clinic, Rochester, Minn.
Bearzy, Herman J.	U. of Pittsburgh, M.D. 1943	Mayo Clinic, Rochester, Minn.
Bradley, William Francis	Ohio State U., M.D. 1943	Mayo Clinic, Rochester, Minn.
Carlos James Harrison	U. of Ore., M.D. 1943 _U. of Minn., M.B. 1944	Mana Clinia Dashassan Mina
Davis Richard Marrill	Indiana U., M.D. 1944	Mayo Clinic, Rochester, Minn
DeVoe Robert Wesley	Creighton U., M.D. 1943	Mayo Clinic, Rochester, Minn
Distler, Edward Karl	Col. of Med. Evang., M.D. 1944	
Doherty, Elmer Michael	Marquette U., M.D. 1944	Elko, Minn.
Eckstein, Arthur William	Northwestern U., M.D. 1912	_814 Nicollet Ave., Mankato, Minn.
Ferayorni, Richard Rudolph	Long Island School of Med., M.D. 1943	Mayo Clinic, Rochester, Minn.
Ferris, Harold Aaron, Jr.	Tulane U., M.D. 1944 U. of Minn., M.B. 1944	Mayo Clinic, Rochester, Minn.
Goltz, Robert William	O. of Minn., M.B. 1944	
Hinging Dahar Saura	St. Louis U., M.D. 1943	Mayo Clinic Rochester, Minn
Jennings David Therington	U. of Pa., M.D. 1943	Mayo Clinic, Rochester, Minn
Johann, Orlando Peter	Marquette U., M.D. 1944	_544 S. 7th Ave., West Bend. Wis.
Karstens, Andres	U. of Oregon, M.D. 1943	Ancker Hospital, St. Paul, Minn.
Karstens, Hans Carsten	U. of Oregon, M.D. 1943	Mayo Clinic, Rochester, Mihn.
Kirby, Joseph Lonnie, Ir.	Emory U., M.D. 1943	Mayo Clinic, Rochester, Minn.
Kozarek, Clarence Edward	U. of Minn., M.B. 1944	25 E. Fifth St., Duluth, Minn.
Ludden, Theodore Edward	U. of Oregon, M.D. 1943	Mayo Clinic, Rochester, Minn.
Mayheld, Leroy Henning	U. of Tennessee, M.D. 1939U. of Buffalo, M.D. 1944	Ancher Hospital St. David Minn
Dolman James P.	Med. Col. of S. Car., M.D. 1943	Mayo Clinic, Rochester, Minn
Povelstad Pandolph Andrew	Northwestern U., M.B. 1944, M.D. 1944	Mayo Clinic, Rochester, Minn
Sheldon Keith Walker	U. of Nebraska, M.D. 1943	_Mayo Clinic, Rochester, Minn.
Sheridan Viola Ellen	Creighton U., M.D. 1943	_ Mayo Clinic, Rochester, Minn.
Skillern Penn-Gaskell	U. of Indiana, M.D. 1944	_Mayo Clinic, Rochester, Minn.
Smith Donald Fugene	Washington U., Mo., M.D. 1943	_ Mayo Clinic, Rochester, Minn.
Spear, Richard Conrad	Ohio State U., M.D. 1943	Mayo Clinic, Rochester, Minn.
Spurbeck, George Headley	Marquette U., M.D. 1944	_Prouix Bidg., Cloquer, Iviini.
Starks, William Oscar	Indiana U., M.D. 1944 Louisiana U., M.D. 1943	Mayo Clinic, Rochester, Minn
Trovall Millard Andrew	University of Iowa, M.D. 1944	Hawarden. Iowa.
Wallace Robert Bruce Ir	Tulane U. M.D. 1943	_ Mayo Clinic, Rochester, Minn.
Walls John Joseph	Craighton II MID 1943	. Iviavo Clinic, Rochester, Iviinn.
Wieczorowski, Elsie Irene	Northwestern U., M.B. 1944, M.D. 1945	_Mayo Clinic, Rochester, Minn.
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	BY RECIPROCITY	non N. C.I. C. D
Bane, Helen Whittemore	U. of Minn., M.D., 1937	_303 N. 5th St., Brainerd, Minn.
Broders, Albert Compton, Jr.	Med. Coll. of Va., M.D. 1943	Mayo Clinic, Rochester, Minn.
Chapman, Jesse Pugh, Jr.	U. of Pa., M.D. 1943 U. of Ark., M.D. 1943	Foley. Minn.
C1:: W/:11: 11-	II at l'aranta (VIII) 1934	iviavo Chinic, Rochester, iviinn
DeFerence Deleb Educie	W/avna U M D 1943	_ iviavo Ciinic, Rochester, Iviinn.
Const U Const	11 of Mich M D 1940	_401 Med. Arts Didg., Minneapolis 2. Minn.
Garala Louis Ismas	11 of Neb M D. 1943	_iviayo Ciinic, Kocnester, iviinn.
Jensen, Garver Llewellyn	Stanford U., M.D. 1944	Mayo Clinic, Rochester, Minn.
Loose, William David	Northwestern II M.B. 1936, M.D. 1937	
Sicher William David	Rush Med. Col., M.D. 1940	Mayo Clinic, Rochester, Minn.
Strong, Munro Lawrence	Creighton U., M.D. 1935	Mayo Clinic, Rochester, Minn.
	NATIONAL BOARD CREDENTIA	University Mocnied Minney 1: 14 14
Blank, Samuel	Med. Col. of Va., M.D. 1941	University Hospital, Minneapolis 14, Minn. St. Mary's Hospital, Dulurh, Minn
	Ol. of Med. Evang., M.D. 1935 Ol. of Buffalo, M.D. 1943	
Remington, John Howard	U. of Buffalo, M.D. 1939	Mayo Clinic, Rochester, Minn.
Von Leden, Hans Victor	Loyola U., M.D. 1942	Living Chine, Rochester, Minn.





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## Advertisers' Announcements

#### BIRTCHER ISSUES BOOK OF MEDICAL TERMS

For the first time someone has compiled a list of medical and surgical terms in the shape of a vest-pocket word book for medical students, nurses, technicians and other affiliates of the medical sciences so that all such may acquire a medical vocabulary quickly and easily. It is the work of C. J. Birtcher, president of Birtcher Corporation, 5087 Huntington Drive, Los Angeles 32, California, and will be sent free of charge in quantities to medical schools, hospitals with courses in nurses training, medical technicians schools, and surgical supply dealers as well as to physicians and surgeons and medical writers.

Beginning with a list of terms for the parts of the body the book concerns itself with the Greek and Latin words from which most of the descriptive terms of medicine have been derived and the prefixes and suffixes that combine with them as modifiers. There follow examples in word building, exercises in word analysis and a word list that appears comprehensive. The author estimates that an alert mind will have mastered enough root words, prefixes and suffixes in a half hour to have given himself a working knowledge of medical and surgical terminology. The booklet is copyrighted and represents a useful contribution to all workers in the field.

#### SCHIEFFELIN BRAND NAME CHANGE

Octofollin was formerly the name employed to designate the brand of benzestrol marketed by Schieffelin & Co. Benzestrol was recognized as the generic name for 2,4-di (p-hydroxyphenyl)-3-ethyl hexane by the council on pharmacy and chemistry of the American Medical Association. To avoid confusion, therefore, the name Octofollin was dropped and now the product is known and labelled "Schieffelin Benzestrol." This synthetic estrogen is supplied in the same strengths and sizes as formerly, namely: Benzestrol tablets—0.5, 1.0, 2.0, 5.0 mg.—bottles of 50, 100 and 1,000; Benzestrol solution—5.0 mg. per cc. in 10 cc. rubber capped, multiple dose vials; Benzestrol vaginal tablets—0.5 mg., bottles of 100.

#### SIR ALEXANDER FLEMING VISITS WYETH, INC.

The week of June 18th, Sir Alexander Fleming, the discoverer of penicillin, went to Philadelphia to receive an honorary degree from the University of Pennsylvania, confer with G. Raymond Rettew of West Chester, the world's earliest producer of penicillin in volume, and to honor Wyeth, Inc., with a visit to that company's penicillin plant, including attendance as honor guest at a dinner given by the company.

The British scientist who discovered the wonder drug sampled some of the new oral penicillin tablets, which went on sale August 1st to the public without prescription, and which are "as accessible and simple to take as aspirin." At the honor dinner he was presented with a set of paintings, "Pioneers of American Medicine," made famous by Wyeth, Inc., by the artist, Dean Cornwell, who was pleased to autograph them. He inspected the penicillin laboratories of the company at Kimberton and West Chester and the Wyeth Institute of Applied Biochemistry, and addressed the Institute's staff. The lean, quiet Scotsman said that is was the pleasantest visit of any in this country.

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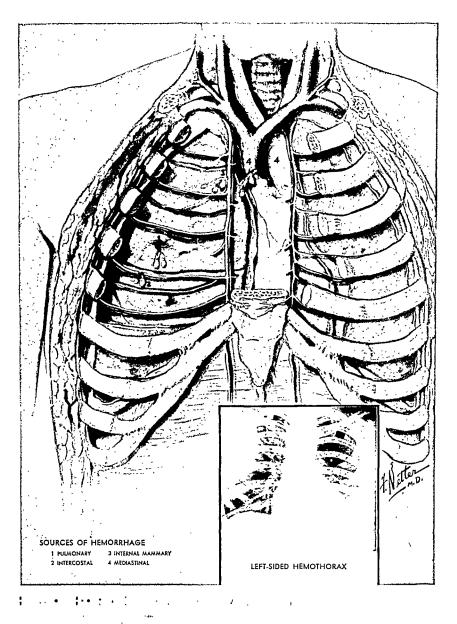
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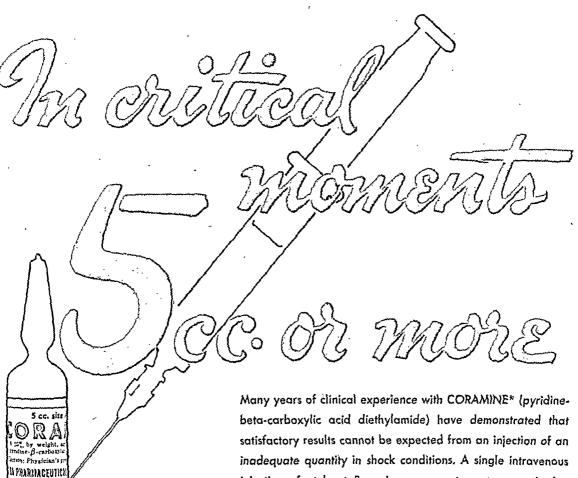
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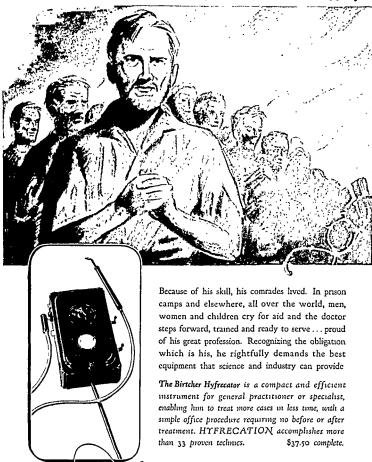
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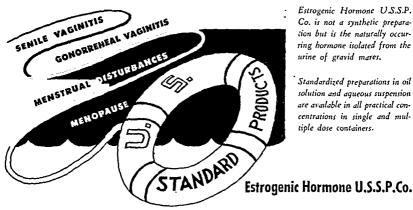


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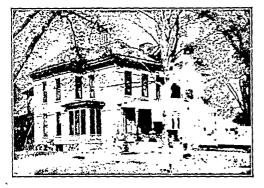
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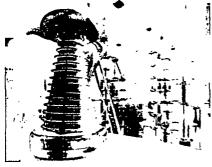
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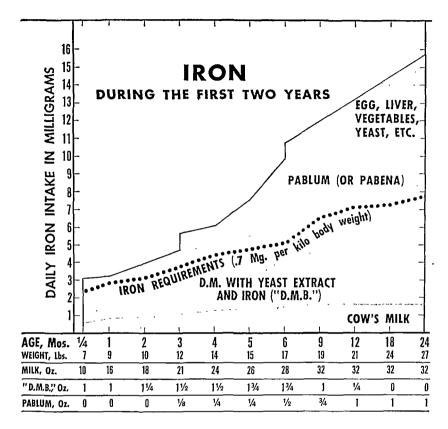
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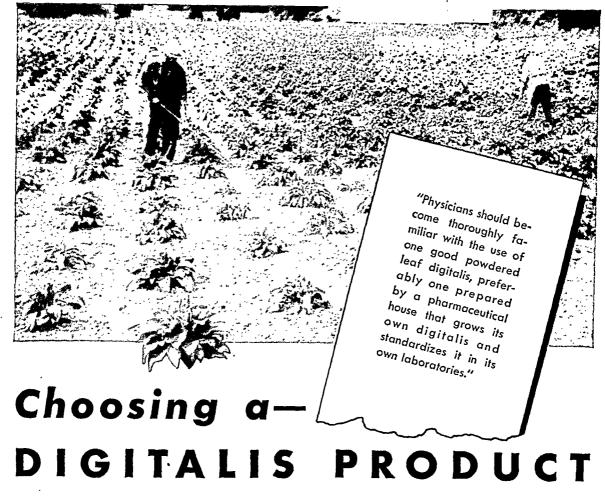


#### IRON DURING THE FIRST TWO YEARS

During fetal life iron accumulates (in the form of hemoglobin) in the infant's body. After birth the hemoglobin frequently drops to 50% by the third month, especially in prematures. Neither breast milk nor cow's milk supplies sufficient iron for the needs of the infant. This chart shows that when the carbohydrate is "D.M.B." and the cereal is either Pablum or Pabena, a generous margin of safety over the requirements can be maintained, not only during the important first six months, but throughout the first two years of life.

More iron than the calculated requirement is needed because some iron is not utilized. In rapidly growing or poorly nourished infants, and in the presence of infection, the need for iron may be even greater than is indicated in this chart for normal infants.

MEAD JOHNSON & COMPANY, Evansville 21, Ind., U.S.A



After noting a marked increase in digitalis poisoning among congestive heart failure patients treated in a southern hospital in 1943 as compared to the period of 1930-1939, Herrmann and associates made the above recommendation.

The choice of many physicians over a long period of years has been DIGIFORTIS KAPSEALS, supplied by Parke, Davis & Company. Each Kapseal\* contains powdered, fat-free digitalis leaf grown in Parke-Davis botanical gardens and standardized in Parke-Davis laboratories.

1. Herrmann, G. R.; Decherd, G. M. Jr., and McKinley, W. F.; Digitalis Poisoning, J.A.M.A. 126:760 (Nov. 18) 1944.

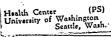
> \*The word KAPSEALS designates the hermetically sealed capsules manufactured by Parke, Davis & Company. Kapseals help protect the contents from the effects of oxidation and thereby improve stability.

Digifortis Kapseals are available in bottles of 100 and 500.

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COMPANY

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# JOURNAL LANCET

New Series Vol. LXV, No. 9

TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION



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#### September, 1945

Body Minerals, W. G. Richards, M.D.	. 315		
MEET OUR CONTRIBUTORS	321		
Tuberculosis Among College Students (Fourteenth Annual Report of the Tuberculosis Committee, American Student Health Association, for the Academic Year 1943-1944)	322		
Abridged Statement of Extraordinary State Committee of U.S.S.R. (Covering Medical Aspects Only) for the Ascertaining and Investigation of Crimes Committed by the German-Fascist Invaders and Their Associates in the Oswiecim Death Camp	326		
Transactions of the South Dakota State Medical Association, Sixty-fourth Annual Session  Meeting of the Council			
Reports of Secretary and Treasurer. Meeting of the House of Delegates			
· South Dakota State Medical Association District Roster			
Alphabetical Roster of South Dakota State Medical Association  Physicians of South Dakota in Armed Forces of the United States			
Women's Auxiliary to the South Dakota State Medical Association			
BOOK REVIEWS	345		
EDITORIALS			
Vacations Now and Then	346		
Have You Anything to Say?			
Poliomyelitis: The Pathology and Its Clinical Significance			
NEWS ITEMS	348		
IN MEMORIAM: Mabel Simis Ulrich, M.D.			
NECROLOGY			
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#### VS.

## DIFFERENCES

WHAT value have claims of superiority unless there is a difference in formula or process to justify such claims?

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PHILIP MORRIS Cigarettes are <u>made</u> differently. In the clinic as well as in the laboratory, the <u>advantages</u> of PHILIP MORRIS have been repeatedly observed, repeatedly reported by <u>recognized authorities</u> in leading medical journals. Yes, PHILIP MORRIS claims superiority . . . <u>and that superiority has been proved.</u>\*

May we suggest that your patients suffering from irritation of the nose and throat due to smoking change to Philip Morris—the one cigarette proved definitely less irritating.



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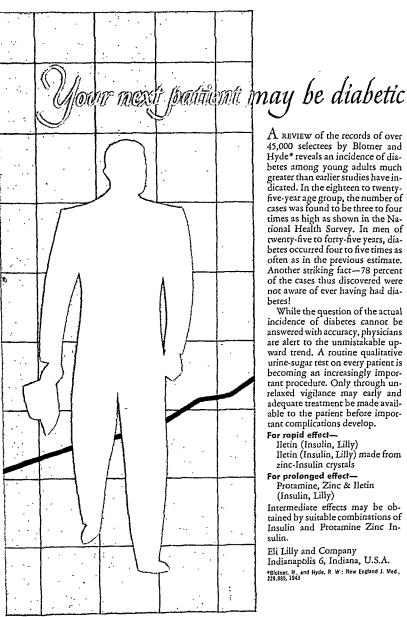
PHILIP MORRIS & Co, LTD., INC., 119 FIFTH AVENUE, N. Y.

\*Laryngoscope, Feb. 1935, Vol. XLV. No. 2, 149-154 Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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Proc. Soc. Exp. Biol. and Med., 1934, 32, 241 N. Y. State Journ. Med., Vol. 35, 6-1-35, No. 11, 590-592.

TO THE DOCTOR WHO SMOKES A PIPE: We suggest an unusually fine new blend-COUNTRY DOCTOR PIPE MIXTURE. Made by the same process as used in the manufacture of Philip Morris Cigarettes.



 $oldsymbol{A}$  review of the records of over 45,000 selectees by Blotner and Hyde\* reveals an incidence of diabetes among young adults much greater than earlier studies have indicated. In the eighteen to twentyfive-year age group, the number of cases was found to be three to four times as high as shown in the National Health Survey. In men of twenty-five to forty-five years, diabetes occurred four to five times as often as in the previous estimate. Another striking fact—78 percent of the cases thus discovered were not aware of ever having had dia-

While the question of the actual incidence of diabetes cannot be answered with accuracy, physicians are alert to the unmistakable upward trend, A routine qualitative urine-sugar test on every patient is becoming an increasingly important procedure. Only through unrelaxed vigilance may early and adequate treatment be made available to the patient before important complications develop.

For rapid effect—

Iletin (Insulin, Lilly) Iletin (Insulin, Lilly) made from zinc-Insulin crystals

For prolonged effect-Protamine, Zinc & Iletin (Insulin, Lilly)

Intermediate effects may be obtained by suitable combinations of Insulin and Protamine Zinc Insulin.

Eli Lilly and Company Indianapolis 6, Indiana, U.S.A. \*Blotner, H. and Hyde, R. W.: New England J. Med., 229,885, 1943



For the first time in many years, an important advance has been made in the therapy of hypothyroidism . . . the development of Proloid . . . a product which supplies the metabolic hormone but has reduced to a minimum the factors responsible for the nervousness and excessively rapid heart action so frequently seen with ordinary thyroid.

In addition, this thyroid product is biologically standardized as to actual metabolic potency. Sole reliance on iodine content (which has been shown to be not always reliable) for potency standardization is no longer necessary.

Proloid is recommended wherever U.S.P. thyroid is indicated—in the same dosages. The Maltine Company, New York. Established 1875.



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When a patient suffers from a mild degree of nutritive failure, or requires regular nutritive prophylaxis as in pregnancy, the careful physician prescribes the entire dietary allowance—and no less—that are recommended by the Food and Nutrition Board of the National Research Council.

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Vitamin A				٠		5000 units
Vitamin D						800 units
Thiamine .						. 2 mg.
Riboflavin						. 3 mg
Niacin .						. 20 mg.
Ascorbic Ac	nd					, 75 mg.

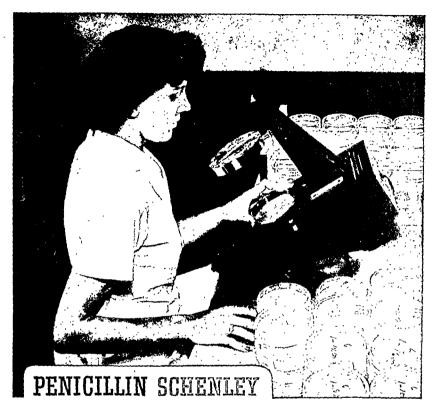
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A Tedral tablet usually relieves the average asthmatic or hay fever patient within 15 minutes. Tedral acts swiftly to relax bronchial muscles and reduce swollen membranes.

Adult Dosage: 1 or 2 tablets three times daily. At pharmacies in 24's, 120's and 1000's — also Tedral Enteric Coated for delayed action during sleep. The Maltine Co., New York. Est. 1875.

TEDRAL for relief in asthma and hay fever



#### -the drug that gives new meaning to the word "control"

with no control exercised over the conditions of its production. Production of pyrogen-free penicillin for the medical profession, however, is accomplished only by the most elaborate methods of control for insuring highest attainable productivity, potency, and purity. Shown here is one of the many rigid controls exercised at the Schenley Laboratories. In this step, PENICILLIN SCHENLEY is being tested to insure standard potency. Such measures of elaborate control are your assurance that you may specify PENICILLIN SCHENLEY with the greatest confidence.

The penicillin which first attracted the attention of Alexander Fleming was an "occurrence of nature",



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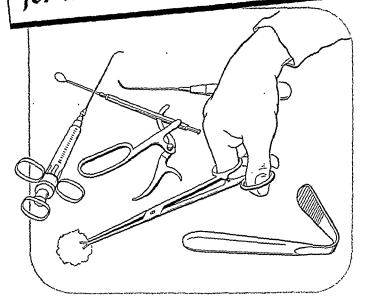
\*McDonald, R. H.: (Headaches of renal origin): M. Clin, N. Am. 21:365 (March), 1940.

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In bottles of 100 and 500 · Acetophenetidin gr. 21/2 · Caffeine gr. 1/2 · Acetylsalicylic Acid gr. 31/2 · Also 'Tabloid' 'Empirin' Compound with Codeine Phosphate gr. 1/2, gr. 1/2 and gr. 1/2. · 'Tabloid' and 'Empirin' are Registered Trademarks



# for the tonsillectomized patient



Simple and uniquely effective, the post-tonsillectomy use of Aspergum

- 1. provides welcome local analgesia
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- by producing increased comfort and encouraging resumption of a suitable diet, hastens convalescence.

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ful clinical experience over a period of many years, Aspergum is acceptable and effective in the case of those many patients—including children—who will not or cannot gargle properly, or who experience difficulty in swallowing tablets. Ethically promoted. White Laboratories, Inc., Pharmaceutical Manufacturers, Newark 2, New Jersey.

Dillard's Aspergum

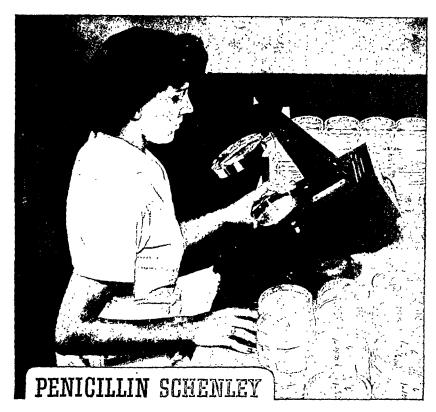


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## TEDRAL for relief in asthma and hay fever



#### -the drug that gives new meaning to the word "control"

The penicillin which first attracted the attention of Alexander Fleming was an "occurrence of nature", with no control exercised over the conditions of its production. Production of pyrogen-free penicillin for the medical profession, however, is accomplished only by the most elaborate methods of control for insuring highest attainable productivity, potency, and purity. Shown here is one of the many rigid controls exercised at the Schenley Laboratories. In this step, PENICILLIN SCHENLEY is being tested to insure standard potency. Such measures of elaborate control are your assurance that you may specify PENICILLIN SCHENLEY with the greatest confidence.



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An effective parasympathetic stimulant



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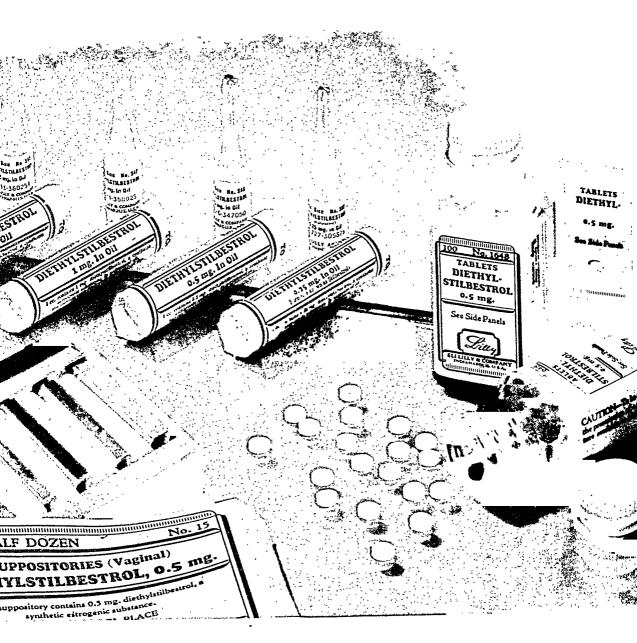


Things had looked pretty good for the North-Side Horners until young Bill Wilkins broke his leg in the first scrimmage of the season. Bill was tough, but not so tough that his tibia didn't snap when twisted under the weight of three enthusiastic tacklers. Then followed days of hospitalization, with the inevitable cast and long hours of patient waiting. Now everything was to be all right, for only this morning Dr. Perry had said, "Just two more weeks, Bill, and you'll be as good as new." Bill knew that when Dr. Perry said "two weeks" he meant just that. All his life he had been taught to respect Dr. Perry and to rely on his judgment. It never occurred to him to question the doctor's decision.

Through the years, Eli Lilly and Company has sought to deserve for itself and for Lilly Products the confidence and respect of the physicians whom it serves. There have been no secrets from the medical profession, no duplicity, no subterfuge. The full and complete formula of every Lilly Product is always available. Quality is the first consideration in manufacturing procedures. From the selection of the crude materials to the testing of the finished product, there is no compromise Every single Lilly Product must be worthy of the name it bears. Physicians can have the same confidence in

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Diethylstilbestrol, Lilly, fulfills all requirements

for the prompt and thorough treatment of menopausal disorders. An estrogenic response which quickly eliminates the effects of ovarian inactivity immediately follows the administration of Diethylstilbestrol. A variety of forms and dosage sizes is available through your regular source of medical supplies.

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uccessful management of high blood pressure calls for a regimen which is adjusted to individual requirements. Physical activity is generally curtailed and overwork is avoided. In certain circumstances special diets are prescribed and the use of stimulants is restricted.

These measures are often supplemented with the administration of Theominal. This combined vasodilator and sedative aids in reducing blood pressure to a more normal level. As a consequence hypertensive symptoms are relieved and the risk of complications is reduced.

DOSAGE: The customary dose of Theominal is 1 tablet two or three times daily; when Improvement sets in the dose may be reduced. Each tablet contains theobromine 5 grains and Luminal\* ½ grain.

\*Luminal (trademark), Winthrop Chemical Company, Inc., brand of phenobarbital.



Supplied in bottles of 25, 100 and 500 tablets.



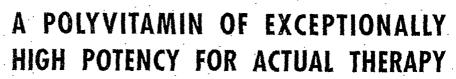
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The amount of vitamins supplying the basic requirements and the amount needed for actual therapy of a specific vitamin deficiency are two different problems. Only through intensive and persistent therapy can satisfactory results be obtained. Pan-Nutron Super Capules provide therapeutic amounts of all essential vitamins.

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# IN B IMPORTANT



GASTROINTESTINAL
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# Pavatrine with Phenobarbital

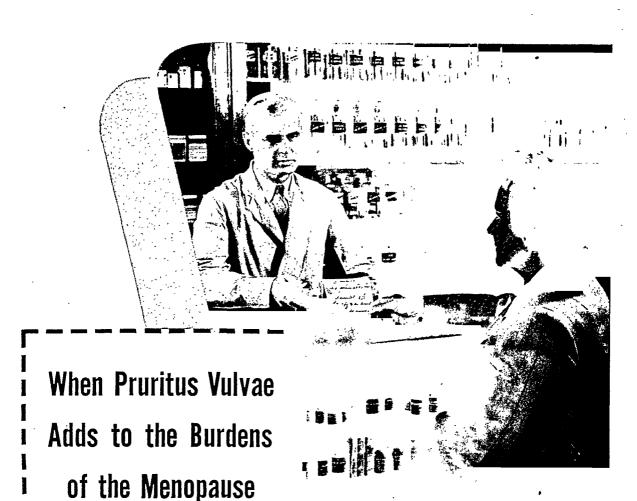
—provides Pavatrine, an antispasmodic which is unique in its combined neurotropic and musculotropic spasmolytic actions, augmented by the central nervous system sedation of phenobarbital. Pavatrine with Phenobarbital is non-narcotic—free of undesirable side effects.

Orally administered in sugar-coated tablets, each containing 125 mg (2 gr.) Pawatrine (SEARLE) with 15 mg. (1/4 gr.) Phenobarbital. Supplied in bottles of 100 and 1000.

G. D. SEARLE & CO., Chicago 80, Illinois

Pavalrine is the registered trademark of G. D. Scarle & Co





THE unfortunate woman who experiences well-defined symptoms of the menopause regards these trying years as the most uncomfortable of her life. When kraurosis vulvae or senile vaginitis adds to her discomfort by introducing the torment of pruritus vulvae, a clinical situation is created which may be the precipitating factor in producing grave hysterical or emotional disturbances. At the first indication of pruritus vulvae, Calmitol should be prescribed. Its dependable antipruritic action prevents uncomfortable hours, and maintains continuous freedom from itching. Calmitol is thus a valuable adjuvant in the management of menopausal problems.

The active ingredients of Calmitolare camphorated chloral, menthol and hyoscyamine oleate in an alcohol-chloroform-ether vehicle. Calmitol Ointment contains 10 per cent Calmitol in a lanolin-petrolatum base. Calmitol stops itching by direct action upon cutaneous receptor organs and nerve endings, preventing the further transmission of offending impulses. The ointment is bland and nonirritating, hence can be used on any skin or mucous membrane surface. The liquid should be applied only to unbroken skin areas.





# clearly defined

THE MALE CLIMACTERIC SYNDROME

is now recognized as a clearly defined entity, and may be suspected to be present when middle-aged men in the prime of life complain of tiredness, nervousness, insomnia, vague pains and impotence.

# ORETON

Therapy with Oreton, testosterone propionate, frequently alleviates these manifestations, if they are due to insufficient hormone, and restores male climacteric patients to former physical and mental vigor.

ADE: MARK ORLYHMANS ... U. S. PAT. OFF



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#### - PALATABLE MULTIVITAMIN DIETARY SUPPLEMENT

# Dapta



bottles with dropper.



DAPTA—An independent source of Vitamins A and D, as well as Vitamin C, and the recognized factors of the Vitamin B Complex—Assurance of complete vitamin protection for infants and children.

- Dapta is readily miscible with infants' formulas, whole milk, cereals or other foods;
- Dapta contains no alcohol;
- Dapta is economical: 0.5 cc. provides the minimum daily requirement for infants;
- Dapta is convenient. A dropper, marked to 0.5 cc., makes administration easy.

. EACH CUBIC CENTIMETER OF DAPTA CONTAINS	DAILY DOSE Infants 0.5 cc. 1 to 6 yrs. I cc. % Minimum Daily Requirement
Vitamin A (fish liver oils)	125% 125% 125% 250% 125% 125% 35% † 125% 125% † 125% 125% † † † † †

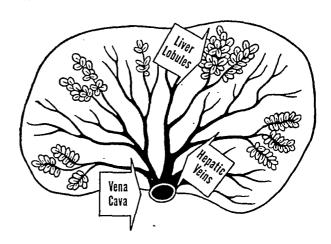
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#### THE IMPACT OF SURGERY ON THE LIVER

In biliary tract surgery, postoperative depression of hepatic function frequently constitutes a problem which demands the surgeon's prompt attention. Anesthesia itself imposes a burden on the liver. Surgical manipulation, such as the opening and closing of the abdomen; the cooling off of the exposed viscera; the unavoidable traction on the gastrohepatic ligament, all exert an unfavorable influence on liver function and bile flow.

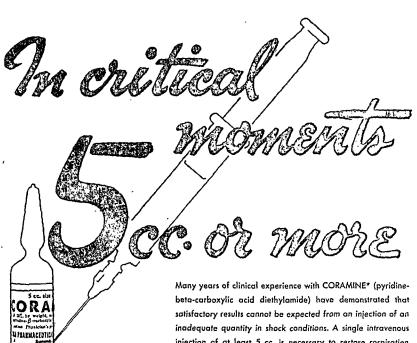
Decholin (chemically pure dehydrocholic acid) and Decholin sodium, administered before and after biliary tract surgery, are effective means of mitigating and overcoming this untoward effect of surgery. By inducing powerful hydrocholeresis they promote physiologic drainage of the hepatobiliary pathways and thus are a valuable aid toward lessening postoperative discomfort. Decholin is contraindicated only in patients with complete obstruction of the common or the hepatic bile ducts.

#### SUPPLIED

Decholin in 331 grs. tablets. Boxes of 25, 100,500 and 1000; and Decholin sodium in ampuls (3, 5, 10 ce).

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inadequate quantity in shock conditions. A single intravenous injection of at least 5 cc. is necessary to restore respiration and circulation, as well as to increase intramuscular pressure. Subsequent maintenance dosage of 1.5, 3.0, or even 5.0 cc. intramuscularly three or four times daily usually follows.

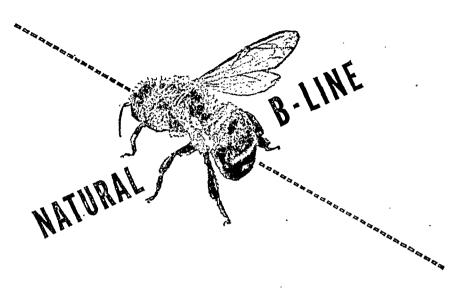
SHOCK due to trauma, surgery, anesthesia, extensive burns. ASPHYXIA - neonatorum, drowning.

POISONING due to opiates, hypnotics, alcohol, carbon monoxide.



cc. Ampuls -- Cartons of 3 and 12 \*Trade Mark Reg. U.S. Pat. Off.

CIBA PHARMACEUTICAL PRODUCTS, INC. SUMMIT, NEW JERSEY IN CANADA, CIBA COMPANY LIMITED, MONTREAL



In a straight-to-the-point attack on vitamin B-complex deficiency states, Elixir 'OMNI-BETA'\* provides all the

known as well as the unidentified factors of the complexas derived from three of its richest natural sources...

yeast, liver and rice polishings.

Blended for balance in a palatable liquid form,

Elixir 'OMNI-BETA' is highly concentrated for potency—

a single teaspoonful daily provides the minimum adult requirements.

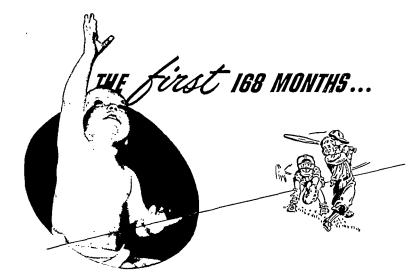
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Supplied in bottles of 4 and 8 fluidounces



Aqueous extract 2.594 Gm. per teaspoonful, concentrated from 13.125 Gm. yeast, 6.875 Gm. liver and 7 Gm. rice polishings... fortified with crystalline B<sub>1</sub>, B<sub>2</sub> and niacinamide.





precious months of American youth to be protected by the physician against the onset of rickets and other types of calcium deficiencies.

Conditions characterized by inadequate intake of Vitamin D, common to the critical periods of infancy, childhood and prepubescency are successfully prevented and treated with



The clinical effectiveness and non-toxicity of Infron Pediatric is shown in the published work of Wolf, Rambar, Hardy and Fishbein.

Infron Pediatric is readily miscible in the infant's feeding formula, in fruit juice, milk

This electrically activated vaporized ergosterol (Whittier Process) is of such high potency that ---

only one capsule is required each month for prophylaxis against and treatment for rickets

or water. It can also be spread on cereal.

Infron Pediatric is now available for your
prescription in the pharmacies. Each package
contains six capsules—sufficient dosage for
six months.

#### NUTRITION RESEARCH LABORATORIES . CHICAGO

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REFERENCES

Rambar, A. C., Hardy, L. M. and Fishbein, W. I : J Ped 23 31-38 (July) 1943

Wolf, I. J.: J. Ped., 22:707-718 (June) 1943 Wolf, I. J.: J. Ped., 22:396-417 (April) 1943 Wolf, I. J.: J. Med. Soc. New Jersey, 38-436-440 (Sept.) 1941

# A Clew Chapter

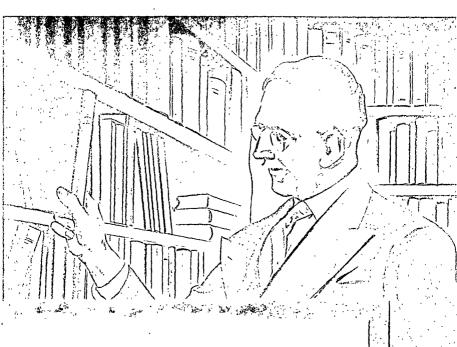
## ANTIARTHRITIC MANAGEMENT



NEW chapter in the treatment of arthritis began ten years ago when the clinical administration of electrically activated vaporized ergosterol (Ertron) resulted in marked improvement of joint motility and in a general sense of well-being in arthritic patients.

INCE that time Ertron has been studied in thousands of cases of arthritis under carefully controlled conditions in a number of leading arthritis clinics, universities, accredited hospitals and private practice.

THAT Ertron produces noticeable subjective and measurable objective improvement in a significant number of cases of arthritis has been securely established.



**ERTRONIZATION** of the arthritic is now a recognized and valued part of the well-rounded program of antiarthritic management.

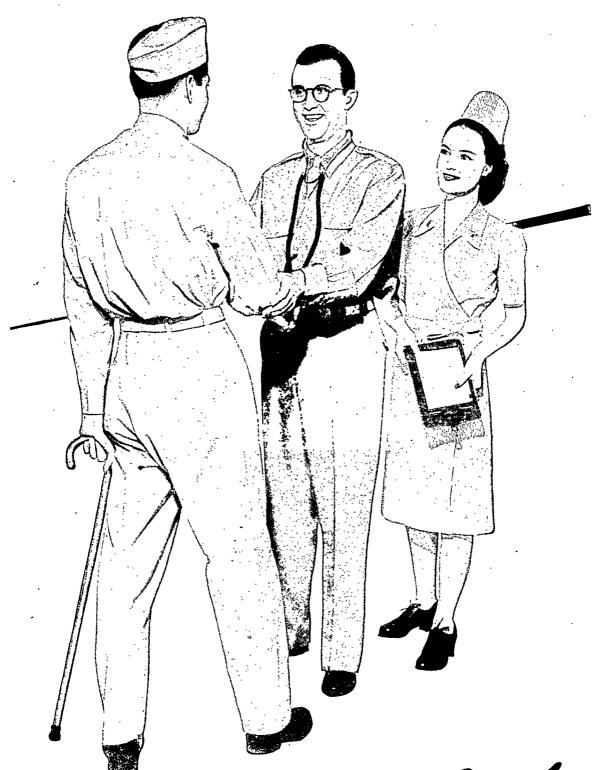
**TO ERTRONIZE**—Employ Ertron in adequate dosage over a sufficiently long period to produce beneficial results. The usual procedure is to start with 2 or 3 capsules daily, increasing the dosage by 1 capsule a day every three days until 6 capsules a day are given. Maintain medication until maximum improvement occurs. A glass of milk, three times daily following medication, is advised.

Supplied in bottles of 50, 100 and 500 capsules. Parenteral for supplementary intramuscular injection.

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# for the Doctor!

• "Good-bye, Doc—and thanks for everything!"

Yes, that's V-Day for the service doctor

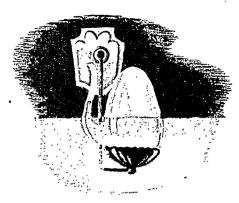
victory in his war to save lives

And doctor that he is—soldier too—he well knows how much a "smoke" can mean to a fighting man. He himself may find that same

comfort and cheer in a few moments with a good cigarette. Very likely it's a Camel for Camels are such a big favorite with fighting men—in O.D., in blue, and in white.

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\\\'amels



## When the pressure is low— the circulation slackens

In chronic hypotension or states of circulatory deficiency associated with convalescence, mild collapse, and other asthenic states, Sympatol provides convenient symptomatic therapy. Orally effective, Sympatol improves the peripheral circulation by raising systolic and venous pressure and increasing cardiac output. Circulation time is shortened although the pulse rate is frequently slowed.

## Sympatol

## To Improve Peripheral Circulation

THERAPEUTIC APPRAISAL: A synthetic pressordrug—para-methylamino-ethanolphenol tartrate—for providing safe circulatory stimulation. Sympatol, on oral administration, increases venous and systolic pressures significantly, diastolic pressure only slightly, with little or no effect on the central nervous system. Repeated doses are consistently and uniformly effective.

INDICATED for symptomatic treatment of circulatory atony—to improve per-



ipheral circulation; to increase cardiac output and shorten circulation time; to increase cardiac efficiency.

DOSAGE: Adults—1 to 3 tablets three times daily, or 1 to 2 cc. of solution every four to six hours. Children—5 to 20 minims of solution repeated as required.

SUPPLIED in 100 mg. tablets, bottles of 50; 10% solution (100 mg. per cc.) for oral use, bottles of 30 cc.

Frederick Stearn S& Company

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#### Body Minerals\*

W. G. Richards, M.D. Grand Forks, North Dakota

UCH ado is made of diet both for the sick and the well, and elaborate lists are handed to patients for each and every disease, but, as a matter of fact, our actual knowledge about food, its ideal composition, its assimilation, and its utilisation, is small. The title which Dr. Cathcart chose for his Oliver-Sharpey lectures for 1940 on nutritional problems, The Mystery of Alimentation, was accordingly a most apt one, and in this he truly says: "What a mystery alimentation is. Here daily before our eyes, by processes unseen and virtually unknown, a real transubstantiation takes place. The dead inert matters which comprise the foodstuffs are converted into living flesh."

We have come some little distance though from the time when proteins, carbohydrates, and fats were the only things considered in dietary planning. We have learnt something about the vitamines. We have also learnt a little,—a very little,—about the minerals, the inorganic vitamines, as they have been called. This paper is an attempt at a sketchy summary of their röle, sketchy necessarily because each one would itself need an entire paper even to fringe the subject. There are advantages, however, in a sort of air-plane view of the territory, for we can thereby see the individual minerals in some sort of relationship with one another, and are better able afterwards to consider each one separately and in more detail.

Sodium has long been recognised as a necessary mineral, and as sodium chloride has been added to the diet of men and beasts from time immemorial. It plays an important part in the maintenance of the acid-base equi-

\*Read at meeting of Billings Clinical Association March 16, 1945,

librium, and, as the base of the interstitial fluids, is concerned with the exchange of water between these and the cells. Root 2 says that "the sodium ion is of such specific importance that the state of shock may be regarded as due to tissue damage resulting from sodium deficiency." Its vital importance is also shown in Addison's disease, where, due to the lack of a hormone from the suprarenal cortex, it is excreted by the kidneys in such amounts that there is a deficiency of it in the body. There is an intimate relationship between certain minerals and endocrine glands. We shall see it again in connection with iodine and the thyroid, and calcium and phosphorus and the parathyroids. It is quite possible that further knowledge will show it to exist between other glands and minerals. The effects of sodium deficiency are again shown where there is an excessive loss through th skin in perspiration, as in those working in high temperatures.

Closely related to sodium is potassum. It is the intracellular base, sodium's opposite number. By the osmotic pressure exerted by these two minerals through the cell membranes the exchange of water and solutes is effected between the cells and the intercellular spaces; there is very little interchange of the two minerals themselves. There is an optimum ratio between these two, and, as most of our foods contain more potassium than sodium, to preserve the balance we have learned to add sodium in the form of salt. Our taste, as it often does, has directed us correctly. If the kidneys are normal an excess of potassium will be promptly excreted, for the renal threshold for potassium is comparatively low, but if not normal an excess may cause serious symptoms.

As potassium is mostly found in the cells, disturbances of its metabolism would be expected to manifest themselves principally in the great cell masses, as the muscles. An excess has been shown to produce paralysis of the skeletal muscles and cardiac arrest, preceded by auricular or ventricular fibrillation and intraventricular block.3 Queerly enough, however, a low blood potassium exists during the attacks of paralysis in periodic family paralysis, which is abolished by the administration of potassium.4 Pudenz et al.5 consider, however, that in this disease the chemical defect responsible for the paralysis lies in the central nervous system and not in the muscles. The earliest effect of an excess of potassium on the heart is shown by an increase in height of the T wave of the electrocardiogram, while in family paralysis this wave is lowered. Nervous tissues are also affected, paresthesias of the hands and feet being an early symptom.6 Kendall 7 considers that potassium is intimately connected with carbohydrate metabolism, and that the effect of insulin upon it may be as important as its effect upon blood sugar. More knowledge is needed about potassium, but sufficient has been learned to indicate its importance, and to suggest caution in its therapeutic administration, especially in the presence of kidney disease.

Ordinarily both potassium and sodium are obtained in sufficient amounts with an ordinary mixed dier, supplemented as it usually is by common salt. The amount of sodium in the body of a 70 kilo adult is about 63 grams, of potassium 150; most of the sodium is contained in the interstitial fluids and supporting structures, and the potassium mostly in the cell masses. The amount of sodium in the blood serum is 330 mgs. per 100 cc. (143 Meq/1) of potassium 20 mgs. (5 Meq/1). In the blood cells sodium is 23 mgs. (10 Meq.) and potassium 420 mgs. (105 Meq.)

Chlorine, being usually united with sodium as sodium chloride, is so closely related with it metabolically that it is difficult to separate their specific effects. It is concerned with the maintenance of the acid-base equilibrium of the blood, representing an acid factor, and also with the osmotic pressure of the interstitial and intracellular fluids. It forms the hydrochloric acid of the gastric juice. There are about 85 grams of it in an average adult body, mostly in the extracellular fluids, and, therefore, in those tissues containing most water, as the skin, subcutaneous tissue, blood, and muscle. There is little of it in the cells themselves, except in the red blood cell, which is unique in having a high chlorine content. It is excreted principally by the kidneys and skin. Like sodium, the kidneys jealously guard it, for it is a high threshold body. In the blood serum it is about 365 mgs. per 100 cc. (103 mqs/1).8 As we get plenty of it in our food the providing of it ordinarily need cause us no concern.

Calcium and phosphorus are intimately related. The administration of calcium is an old practice. I remember as a boy one of my schoolmates telling us that his brother was taking lime water, and was getting bonier than ever. A tremendous amount of work has been done on calcium and phosphorus metabolism, and I must remind you again that this paper only attempts to hit the high spots.

Calcium makes up about 2 per cent of the body weight, mostly,—about 99 per cent,—in the bones and teeth.<sup>9</sup> It forms the supporting structures in vertebrates,

its tendency to form insoluble salts making it admirably adapted for this purpose. This tendency, however, has its disadvantages, for it makes the absorption of ingested calcium from the gut difficult, and facilitates its precipitation along the path of its elimination, as in kidney stone. Indeed, McCance <sup>10</sup> says that were the kidneys the only path for its elimination man would probably long ago have been exterminated through sheer inability to excrete his unwanted calcium. Mammals fortunately early learnt to get rid of most of it through the intestines, where its insolubility could not cause mechanical obstruction.

It is present in the blood to the amount of about 10 mg. per 100 cc. (5 meq/1), almost entirely in the serum, and is partitioned into three fractions, 4.5 mg. to the 100 cc. combined with the proteins, the so-called non-diffusible fraction,—it is doubtful whether this is physiologically active,—2 mg. ionised in simple physical solution, and 3.5 mg. unionised in organic compounds. 11,12

Besides supplying the supporting tissues, calcium helps to control the heart beat, the contractility of muscle, and the transference of impulses at the neuro-muscular junction and through the synapses. In general calcium ions lessen the irritability of the tissues containing them. <sup>13</sup> It also plays a part in the coagulation of the blood. It is controlled by the parathyroid glands, through the parathyroid hormone, which seems to maintain the blood level by breaking down bone to release calcium, while vitamin D increases its absorption from the intestines. But the relationship between these two factors is rather uncertain, in that in many respects they seem supplemental. Incidentally dihydrotachysterol is a synthetic product, resembling parathyroid extract.

A deficiency of vitamin D causes rickets. A deficiency of parathyroid causes a low level of blood calcium, and, as a result, tetany, asthma, trophic disturbances of the nails and teeth, alopecia, cataracts, and mental symptoms as depression, delirium, and dementia. An excess, as in parathyroid tumors, produces decalcification of the bones, as in osteitis fibrosa cystica, and a flooding of the blood with calcium, resulting in metastatic deposits of calcium

in the kidneys, blood vessels, and lungs.

The normal requirement of calcium for an adult is said to be about one gram per day, which we get mostly from green vegetables, nuts, eggs, milk and its products, as cheese and butter. Meat is a poor source. Shellfish is a good one. Where there is much chalk a considerable amount of calcium is obtained with the drinking water. However, all the calcium ingested is not absorbed from the intestines, for the alkalinity of the intestinal secretions tends to form insoluble calcium phosphate and carbonate, this occurring when the pH rises above seven.12 Lactose in the diet aids absorption. An excess of inorganic phosphorus, magnesium, or potassium also hinders absorption. Foods containing oxalic acid, as spinach, strawberries, and rhubarb, prevent absorption because of the formation of insoluble calcium oxalate. McCance 10 says: "There may be enough oxalic acid in a helping of rhubarb or strawberries to immobilise all the calcium. eaten at that meal." He also points out that cereals and nuts are an uncertain source of available calcium, as

September, 1945 317

much of it exists within them as phytin, the calcium magnesium salt of inosotol hexaphosphoric acid, and we have no enzyme capable of hydrolysing this. For this reason an excess of cereals promotes rickets. An excess of fat in the diet causes the formation of insoluble calcium soaps, which also occurs in such diseases as sprue.

Phosphorus (after calcium) is the next largest mineral constituent of the body-1.2 per cent phosphorus as against 2.2 calcium.9 It is normally present in the blood serum to the amount of 3 to 4 mg. per 100 cc., but this only represents the inorganic phosphorus, and the inorganic phosphorus of the body amounts to only onetwelfth of the total phosphorus. In the cells most of it exists in the form of organic radicles, as nucleoprotein of muscle, phosphoprotein of milk, phospholipines, as lecithin, in nervous tissues, liver, egg yolk and pancreas.12 McCance14 calls it the most interesting inorganic constituent of the body. He says: "Even if we find out all about magnesium, iodine, etc., I think the record of phosphorus will be hard to beat. It is used in the proteins, it is used in the fatty membranes and in fat metabolism, in the nuclei, in the bones, in the regulation of the body's reaction, and as for its part in carbohydrate metabolism-whenever the body wants to do anything to a carbohydrate molecule, even absorb it from the gut, it seems to turn it into a phosphate ester with incredible speed, to do what it wants to the molecule, and then to de-esterify it again with equal ease. Nothing can live without phosphorus; most living organisms require large amounts." This ability to utilise phosphorus in these many ways seems to depend upon certain enzymes, the phosphatases, which are widely distributed in mammalian tissues. Phosphatase in the blood plasma is increased in certain diseases of bone, and in rickets this increase antedates roentgenographic changes and alterations in the blood serum phosphate. 12,15 Vitamin C is a powerful activator of serum phosphatase, the activity of which is markedly decreased in scurvy. 16 It has also been suggested that vitamin D may exert its action by the conversion of organic to inorganic phosphorus in bone. 16 In rickets and osteomalacia there is an impairment of phosphorus and calcium metabolism, remedied by vitamin D. There is also a phosphorus deficiency disease of cattle, which has been investigated principally in South Africa and Minnesora. It causes retardation of growth and abnormal skeleton development, the animal becoming stiff and lame with pain on movements, and the bones fragile and liable to fracture. It occurs where the soil, and consequently the grass, are deficient in phosphorus.17 It is interesting that these animals seem instinctively to recognise their needs, for they develop a craving for bones, eating carcasses, and even killing and eating young lambs. We might remember this when we interfere with peoples' natural selection of foods.

We get most of our phosphorus from meat,—which, by the bye, is low in calcium,—milk, egg yolk, cereals, nuts, beans, fish. Generally an ordinary mixed diet will provide sufficient phosphorus. In connection with fish an old tradition considered fish a desirable food for brainworkers, for there is a large amount of phosphorus in the brain. The connection was summarized by the Ger-

mans in the aphorism "Ohne Phosphor keine Gedanke." The connection undoubtedly lies in the relation between phosphorus and carbohydrate metabolism, for the brain depends almost entirely for its nutrition upon carbohydrates, a fact which has been impressed upon us by the profound mental effects of excessive doses of insulin and the consequent hypoglycemia.

Magnesium is closely related to calcium and phosphorus in the body. It exists in all the tissues and fluids, the largest amounts being in the bones and muscles. In the bones it amounts to one-eighth the amount of calcium. In the muscles, however, it is in greater amount than calcium, about twice as much, but for what specific purpose we do not know. In the blood serum it amounts to I to 3 mg. per 100 cc. Our knowledge concerning its role in nutrition in the human is very limited, but cattle, where magnesium is deficient in the soil, and consequently in the grass, suffer from "grass tetany," finally going into convulsions and coma. 18 In experimental rats a deficiency of magnesium in the diet was associated with vasodilatation, hyperemia of the cutaneous vascular system, increased irritability, cardiac arrhythmia, and spasms, while there was an increase in the amount of calcium in the heart, kidneys, and muscles. In calves there was extensive deposition of calcium in the heart, blood vessels, and soft rissues. 19 Hirschfelder 20 says that while ingestion of magnesium, as with the administration of epsom salts, generally causes no harm, the excess being rapidly eliminated by the kidneys, but when these are damaged, as in nephritis, serum magnesium will rise and coma and death result. He says that many cases diagnosed as uremic coma are really magnesium coma, and cautions against the giving of magnesium sulphate in kidney cases. He also says that animals with slightly raised plasma magnesium were more sensitive to morphine, and attributes Osler's caution about giving morphine to old people and nephritics to the fact that he used magnesium sulphate liberally and had noticed this effect. He describes cases of muscular twitchings and convulsions due to magnesium deficiency and relieved by the sulphate. Pines 21 recommends magnesium sulphate intravenously in spastic conditions of blood vessels. But this seems contrary to the observation previously referred to that deficiency of magnesium results in vasodilatation.

Sulphur, being an integral part of the protein molecule, is, of course, an indispensable mineral element, but otherwise its rôle is not very definite. There is no clearcut syndrome due to its deficiency as there is for sodium and potassium or calcium and phosphorus.

Sulphur occurs in the body to the extent of 1.96 grams per kilo., mostly in the muscles, skin, hair, and bones. Red hair contains more sulphur than other colors, possibly accounting for the fiery disposition of red-headed people. It enters into combinations with carbohydrates as in mucoitin, glutathionic acid, and chondroini, and with lipids in the brain and nervous tissue. In the proteins it occurs in the amino acids cysteine, cystine, methionine, and ergothionine, methionine being an "essential" aminoacid. It enters into the composition of the bile salts. It occurs in insulin, in heparin.<sup>22</sup> It is mostly eliminated by the kidneys, and since it is a very low threshold body the kidneys, and since it is a very low threshold body

little is reabsorbed by the tubules from the glomerular filtrate. Where the kidneys are damaged there is a retention of sulphur in the blood, caused mostly by an impairment of glomerular filtration, though in the toxemias of pregnancy this retention is also due to tubular reabsorption. According to Goudsmit and Keith <sup>23</sup> there is a marked sulphur retention in hypertensive cardiovascular disease. These authors say that its level in the blood is a more delicate indication of impairment of kidney function than that of urea. Normally its blood level is about 5 mg. per 100 cc. In cystinuria the metabolism of cystine, a sulphur containing aminoacid, is impaired and it is excreted by the kidneys with the formation of multiple cystine calculi. With it occur hysterical symptoms and arthritis.<sup>24</sup>

The provision of sulphur in the dietary need cause us no concern, for we get plenty in the ordinary proteins we eat. Indeed, the fact that it is a low renal threshold body would seem to indicate that the body is anxious to get rid of it, and therefore makes little provision for its resorption by the kidney tubules. However, its potency for good and evil has long been known, for it is an old remedy. The sulphur and molasses of not so many years ago will occur to you, and now we have revived it in the sulphanilamides. These show, too, the harm it may do by the neutrophilic granulopenia induced by them, and more recently by thiourea in the treatment of hyperthyroidism.<sup>25</sup> As an external remedy it still makes up a large part of the armamentarium of the dermatologist, and natural sulphur springs will probably always be popular, for the smell suggests therapeutic efficacy.

Recently I was told by a coal dealer that he sells a considerable quantity of fine coal to the breeders of pigs. The pigs, he told me, eat it with avidity, to the great improvement of their nutrition. He thinks it is the sulphur in it which is the nutritional factor, for other coals which

contain little sulphur are refused by the pigs.

Since its connection with diseases of the thyroid gland has been recognised probably no mineral has received more attention than iodine. However, as in so many other matters, the ancient Greeks anticipated us, for, according to Dr. Bing,26 they used burnt sponges, which contain iodine, for the treatment of goiter. It is decidedly an essential mineral. Upon its ingestion in sufficient quantities depends the efficient function of this gland, which controls the rate of energy production or metabolism. It is another instance of the direct connection between a mineral and an endocrine gland. The iodine in the thyroid is united to a protein molecule, thyroglobulin, of which thyroxin seems to be the most active part. There is another fraction, diiodotyrosine, which seems to be an intermediate product. Deficiency of iodine results in simple goiter, which is a compensatory hypertrophy of the gland, as if it acted like an ore processing plant which had to handle a poor grade ore, requiring a larger plant to handle it. When the iodine supply is so small that not enough can be obtained for the body requirement then we have hypothyroidism or myxedema. If for any reason the thyroid mechanism is too active and too much thyroxin produced then we have some form of hyperthyroidism. This probably is an oversimplification, for there is much we do not yet understand, as, for instance, why in hyperthyroidism an excess of inorganic iodine will produce a remission of symptoms. That the secretion is an imperfect one, which is corrected by the iodine excess, is one explanation, but this hardly seems to fit the undoubted fact that the improvement is only temporary.<sup>27</sup>

The normal blood iodine is about 12 micrograms per 100 cc. A man of 70 kilograms is said to contain about 25 milligrams of iodine in his whole body, of which 15 mg. are in the thyroid gland. According to Marine, if the thyroid contains iodine above 0.1 per cent of its solid matter goiter does not develop.<sup>28</sup> There is no agreement as to the amount of iodine needed to be ingested per day to meet the body's requirements, but Shohl gives it as about 0.05 to 0.10 mg. per day.<sup>29</sup> It undoubtedly varies at different ages and under different conditions. Pregnant and lactating women require more, and the requirements are increased during fever and infections.

We obtain it from foods and drinking water, these obtaining it from the soil. Consequently there is a great variability in their iodine content, for some soils are deficient in iodine. Where this is the case we find endemic goiter, corrected, as has been brilliantly demonstrated in recent years, by the addition of inorganic iodine. Infected water and insanitary conditions seem to create an additional demand for iodine, the correction of which in some places has alone prevented goiters. Garden vegetables and legumes generally contain more iodine than cereals and fruits.<sup>30</sup> Sea foods are a good source, and the dwellers by the sea obtain an additional supply from the iodine precipitated by the evaporation of sea water

vapor in the air.

Iron is another mineral the therapeutic use of which was known before its physiological function, for Sydenham in 1664 mentioned its use for restoring the pink color to the cheeks of pale individuals.<sup>31</sup> It is principally concerned with the transportation of oxygen to the tissues, and is carried by the hemoglobin of the red blood cells, hemoglobin being a compound of a globin and hematin. Upon it also depends the oxidation of food materials within the cells, this being effected through the agency of an iron containing pigment, cytochrome, and also the so-called respiratory enzyme of Warburg, containing iron. Macallum says that the "most important of all elements in the life of every cell is an iron-holding compound." 32 The method of its action is much disputed, so much so that Whipple 33 has said that a monument erected to commemorate developments in iron metabolism would be a Tower of Babel. According to Sachs 34 it exists in the body in four forms, 1) hemoglobin iron, 2) plasma iron,—which is the transport iron, though it is not known how it is exchanged with the cells,-3) easily split off iron,-so called because weak acids free it from its chemical combinations in erythrocytes and plasma, its function not definitely known, it constitutes about 10 per cent of the total blood iron, is an organic compound, and is ionized and dialyzable,35 -and 4) nuclear iron, which is found in all cells and is part of the respiratory enzyme mechanism. The amount in the blood is about 50 mg. to 100 cc. of whole blood in

the male and 45 in the female, of which the largest part is in the hemoglobin. About a third of the total iron in the body exists in the liver, spleen, bone marrow, and kidneys, where it is stored for use as wanted. There is a great economy in the use of iron, for as the red blood cells are broken down it is stored in these organs and again utilized. During the last months of intra-uterine life there is a storage of iron and also copper in the liver of the fetus, to insure an adequate supply during the months of nursing, since milk is deficient in these elements. After the age of forty it is said that deposits of free iron are common in the brain.<sup>34</sup> This may be the reason why people as they get older become rusty and their brains develop an aversion to new ideas, but this seems to happen to some at a very early age.

Copper is closely related to iron. As hemocyanin it takes the place of iron in arthropods and molluscs.9 Shohl 37 says that hemocyanin represents the bronze age. of living matter and hemoglobin the iron age. It occurs in all the tissues, the largest amounts being found in the liver, spleen, and kidneys. The adult body is said to contain from 100 to 150 mgs.,34 and the blood serum contains 1 to 2 mgs. per litre. There is more in the corpuscles. It is undoubtedly a necessary mineral. It seems to act as a catalyst in hemoglobin formation, and aids in the mobilisation of iron when needed. Its amount in the blood is inversely related to that of iron, being increased in the anemias.34 In nephritis, however, copper fails to rise with the decrease in iron. There is a difference of opinion as to the amount of copper needed, 2 to 7 mgs. being given as the daily needs. It is present in varying quantity in all types of foods, particularly in liver, oysters, nuts, and legumes. It is contained in water, and milk, and all liquids. As to the need of adding it in the treatment of anemias, Sachs says that it is unnecessary in the iron deficiency anemias, for he had never found a copper deficiency in the analyses of the blood he had made. In any case, he says, all iron pharmaceutical products contain some copper. However, it is not at all certain that this is the final word on copper.

These minerals which exist in the body in small amounts but are yer nutritional necessities, are the so-called "trace" elements. Besides copper and iodine there is a number of others in even smaller amounts. They seem to be intimately related to vitamins and it is said that some of the symptoms of vitamin deficiency are really due to deficiencies of these trace minerals, and that consequently synthetic vitamins, lacking these, may fall to achieve the purpose of their administration, and need supplementing by them. Deficiencies of some of them, while known to cause sickness in animals, have not yet been shown to do the same for humans. The presumption is, however, that they do.

Fluorine is another of these trace elements. A good deal of interest has been excited in it on account of its connection with the enamel of teeth. It is very commonly distributed in soils, and consequently in most food-stuffs. It exists as calcium fluoride or duorspar and calcium fluo-phosphate or apatite, which reacts with sodium chloride to form sodium fluoride, a much more soluble form. It is found in certain clays used for the making

of china and in association with lead ores. It is found in the smoke from factories using super-phosphate, as glass works, brick works and aluminum factories, from which it is deposited on contiguous land. As would be expected, there is a large variation in the amount in drinking waters, the largest amounts being from wells. It is present in all tissues, but mostly in the bones and teeth, especially in the teeth enamel. In the blood there is 0.5 mg, per 100 cc. 39

Shohl says that fluorine has never been demonstrated to be essential by biological experiments, but where it exists to an amount greater than 1 part per million in the drinking water it produces mottling of the enamel of the teeth from deposition of fluorin.

This occurs where drinking water is used containing over one part per million of fluorine before the calcification of the teeth is completed. The normal translucency of the enamel is lost and a chalklike mottling appears. Pits occur on the surface of the enamel and at times a depressed horizontal line. Attrition of the enamel surface is evidence of a severe degree of fluorosis and teeth so affected break readily. The mottled enamel may later become stained by the deposition of pigment, varying in color from yellow to a deep brown, most often seen on the labial aspects of the anterior maxillary teeth. <sup>40</sup>

An excess of fluorine in cattle and in experimental animals causes overgrowth of the teeth, besides making them brittle. Beddie <sup>41</sup> says it makes them soft and causes inflammation of the surrounding gums. It also affects the bones, causing an osteosclerosis, especially of the spine, with synchondrosis and ossification of the intervertebral discs and wedging of the vertebrae. Animals grazing in the vicinity of superphosphate factories show lameness, enlargement of the bones, and cachexia.<sup>12</sup>

However, when present in the drinking water in an amount not to exceed one part per million it is said to prevent caries, and the cities of Newburgh and Kingston in New York state are undertaking the experiment of adding fluorine to the drinking water in that amount in the hope of lessening caries. All do not agree with this, one speaker at a meeting at the London School of Hygiene in 1942 going so far as to say that in his experience fluorosis was associated not with less dental caries but with more.42 But the speaker seems to me to have missed the point, for it is not fluorosis which is claimed to prevent caries, but such small amounts as would have delighted the heart of the homeopath. The fear has also been expressed that increase of fluorine would make bones more liable to fracture. Recent work by McClure 43 however, negatives this. The whole question can hardly be considered settled, and the New York experiment will be watched with interest, though the responsible authorities will have a very unhappy time if mottled teeth become the rule in their communities.

Wilson 44 has noticed a relationship between the existence of endemic goiter and excess of fluorine in the soil with fluorosis.

Cobalt is probably another essential mineral, though existing in the body only in traces. Not much seems to be known of it in relation to the human, but in recent years much study has been done upon it in reference to

other animals. As far back as 1807 sheep had been known to suffer from a disease characterised by anemia and emaciation, locally known as "pining." First noticed in southern Scotland, it was later shown to exist in Australia and New Zealand under the names of bush sickness or the wasting disease, where it had become such a serious menace to the livestock industry that investigations were undertaken by the government. It has also been investigated in Kenya, Africa, in Florida, in Michigan, and western Canada under various names. It was finally shown to be due to a lack of cobalt in the soil and could be cured by administration of this or by adding it to the soil. It illustrates well the importance of infinitesimal amounts, for an average sheep needs only 0.04 mg. per day, and they can get this amount from grass or fodder in which even spectographic methods are unable to detect cobalt. It is also to be found in certain sea animals, though it has not been shown to be present in sea water.45 Evidently the animal cell must be able to take extremely small amounts and concentrate them. I wonder, though, whether there is not another explanation. For hundreds of years alchemists spent their time trying to turn iron or other "baser" metals into gold, and though with the rise of modern chemistry, and the conception of fundamental unchangeable elements, this transmutation of metals became ridiculed, recent science has found it possible. I wonder whether the animal cell is not able to do this too. It can do extraordinary things, often seemingly with ease doing things which the laboratory can only do with very great difficulty, and it seems to me that it may possibly be able to transmute elements, for who can put a limit to the powers of the animal cell?

An excess of cobalt has been shown to cause polycythemia in rats.

Zinc exists in the body to the amount of about 3 mg. per 100 grams weight. In the blood there is 0.5 to 0.7 mg. per 100 cc., one-third in the plasma and two-thirds in the cells. 46 Its particular function is unknown, but it is said to take part in oxidative processes. There is little danger of not getting enough, as it occurs in most foods and waters in sufficient though varying quantities, and an excess of it seems to be harmless.

Manganese is considered an essential mineral, though its functions, too, are not clear. It seems to have some effects on growth and the sexual glands. Male rats on a diet deficient in it develop sterility and testicular degeneration, while female rats produce nonviable young. Chickens deprived of it develop osteodystrophies. It is intimately connected with the activity of certain enzymes. It has been used in the treatment of anemias, though its utility is doubtful. The liver contains the largest amount, -170 micrograms per 100 grams of fresh tissue, and the blood 2 micrograms to the 100 cc., though it is found in smaller amounts in all tissues. We get it from milk, the bran of cereals, nuts, animal products, fish, and plants. How much we need of it is not known, probably about 0.3 mg. per kilo of body weight per day,47 but as there are about 42 parts per million in whole wheat flour against only 7 in white,48 McCarrison 47 seems to fear that the milling of cereals may have reduced the amount ingested below that needed and considers that children

should receive whole wheat bread to secure that needed for growth and also for the needs of the thyroid gland.

As silicon makes up 25 per cent of the composition of the globe <sup>49</sup> it is not surprising that we ingest considerable, several hundred milligrams per day. It is present in the blood to the amount of 16 mgs. or more per 100 cc.<sup>50</sup> The elasticity of the skin is said to depend upon it, the amount here decreasing with age. Silicotic lungs may contain as much as 12 per cent of the dried material.

Baudisch <sup>45</sup> says that the water of one of the springs at Saratoga has been esteemed for many years as an eyewash and skin beautifier, which he attributes to the monosilicilic acid. He also says that the fact that the aqueous humor contains silicon is perhaps more than an interesting correlation.

Bromine occurs in all tissues, about 1 mg. per cent, in the blood serum, with 0.5 mg. in the blood cells.<sup>51</sup> The interesting thing about bromine is that it occurs in comparatively large amounts in the pituitary gland, 15 to 30 mgs. per cent.<sup>51</sup> What the significance is we do not know, but from the analogy of iodine in the thyroid it is probably considerable. No doubt it will receive more attention in the future than it has in the past.

Such is a brief summary of the rôle of minerals in metabolism. Of some of them we have considerable knowledge, but of others very little. We should, however, at least think of them in planning dietaries, for food is more than mere fuel. After all, when we deduct the two-thirds of us which is water we are little else than animated dirt, and probably need more than the peck of this in our diet that the old saw says we have to eat before we die. Regarding our preoccupation with the three conventional kinds of foods Sir F. G. Hopkins hit it off rather nicely when, in reference to the feeding of cattle, he said:52 "We thought we were feeding our animals on proteins, fats, and carbohydrates, but what we were really feeding them was carrots and hay." When we eat our bread and cheese and beer, or our meat and vegetables and pie, we actually get more than we bargain for, and sometimes what we don't get is even more important. For this reason it is an advantage to obtain our foodstuffs from a variety of places, because the soil of one may be deficient in certain minerals, and the consequent deficiencies in the foods from that source are likely to be corrected in foods from others. Confining ourselves to "home products" may sound very patriotic, but, like isolationism in general, is not only selfish but silly, for it may compel us to go without something vital for our best development. No matter how good we may think we are, traffic with the outsider can often improve us both. mentally and physically.

In spite of all our affectation of knowledge on foods and nutrition, we are probably blindly looking upon and misdiagnosing cases of deficiency quite often, and because of this our ignorance of the mysteries of alimentation I would emphasise the need of caution in planning dietaries. We may do more harm than good, for there are so many gaps in our knowledge that we cannot afford to be dogmatic. A plentiful mixed dietary, with a healthy respect for individual tastes and idiosyncracies, is as likely

to be right as an elaborate diet list, much though this may impress the patient and his relatives.

And, in conclusion, let me quote the very wise advice to the cook and the housekeeper by the Furnases: 5.1 "The best kitchens are those in which almost nothing is thrown away, for it is the juices, peelings, and leaves which contain the accessory factors necessary for human health. The fuller the garbage pail the pooter the health. Stinginess in the kitchen is one of the greatest virtues."

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### MEET OUR CONTRIBUTORS

Among the varied and human pleasures of medical publishing not the least is the one that concerns our contributors,their educational backgrounds, their personalities as revealed by their writings. That our readers may share this pleasure with us is the reason for these brief notes.

- Dr. W. H. G. Richards, a graduate of the university of Minnesota, has practiced in Billings, Montana, for thirty-two vegars and specializes in internal medicine. He is president of the Yellowstone Valley medical society, is a fellow of the Amer-ican College of Physicians and a member of various other national and local societies
- Dr. A. B. Baker, Minneapolis, Minnesota, is a distinguished neurologist and the holder of five degrees, the medical degree having been granted in 1940 by the University of Minnesota, at which institution he is associate professor of neuropsychiatry. Dr. Baker is a member of four associations of neurologists, neuropsychiatrists and neuropathologists and a member of Alpha Omega Alpha and of Sigma Xi as well as a diplomate of the American Board of Psychiatry and Neurology His research interest in encephalitis is well known and he made three recent and important contributions to this journal.

#### Services Need Physical Therapists

Major General Norman T. Kirk, Surgeon General of the Army, and Vice Admiral Ross T. McIntire, Surgeon General of the Navy, declared that the return of the wounded from many fronts is intensifying the shortage of physical therapists and urge young men and women throughout the nation to avail themselves of the scholarships offered by The National Foundation for Infantile Paralysis which has appropriated \$1,267,600 for a physical therapy program. Applications for scholarships are being accepted at the National Foundation's offices, 120 Broadway, New York 5, N. Y. Postwar physical therapy will not only help repair the human damage of the war but also help overcome the less dramatic but none-the-less serious casualties of everyday peace-time life. Students who accept the scholarships are not required to limit their work to infantile paralysis patients upon completion of the nine and twelve months courses.

### Tuberculosis Among College Students\*

Fourteenth Annual Report of the Tuberculosis Committee, American Student Health Association, for the Academic Year 1943-1944

URING the past three years there have been many factors which have interfered with the normal functioning of college health services. Yet the number of institutions having to discontinue their tuberculosis programs has been less than was actually anticipated. The committee is confident that as our college enrollments return to normal and adequate medical personnel becomes available, we shall witness substantial progress in college health activities. Many institutions expect a repetition of the experience immediately following the last war, when enrollments increased very markedly. Some of our state colleges and universities anticipate a 20 to 40 per cent increase in students over their pre-war levels. It is estimated that more than onehalf million returning service men and women may take advantage of the opportunity for college training. Numerous communications have reached the committee during the past year indicating that many colleges are now planning various types of expansion which will provide more adequate and more constructive health programs. Increased health fees or appropriations are apparently in prospect at a considerable number of colleges. There is every reason to believe that tuberculosis programs will be instituted for the first time at many institutions just as soon as conditions permit. Undoubtedly many of us will be able to extend and improve our case-finding procedures so as to provide more adequate protection against tuberculosis for all of our students.

For the academic year 1943-44, the committee received 400 replies to the annual letter and questionnaire which was sent to 886 institutions. Table 2 shows the number of accredited colleges, by states, which were contacted by the committee, as well as the number of replies received and the number of colleges reporting programs. It will be noted that only 45 per cent of colleges filed any type of report and 32.2 per cent reported tuberculosis programs. It is believed that both of these figures will show rather marked improvement during the next few years.

#### New Cases of Tuberculosis

There were 286 colleges which reported case-finding programs during 1943-44. This is an increase of 19 over last year. The reports from four colleges give incomplete data and their results are not included in this summary. Of 282 colleges with programs, 199 include a tuberculin testing routine and 83 employ chest roent-genograms without preliminary testing. Of special interest, we believe, is the significant increase in the number of students found to have tuberculosis in 1943-44 as compared with the previous year. The enrollment at those colleges conducting case-finding programs in 1942-43 was 406,626. They reported 522 newly discovered cases of tuberculosis, a rate of 128.3 cases per 100,000

\*The report which appears here was not printed in Journal-Lancet annual Tuberculosis Issue for April 1945 because of delay in compilation of returns made by the colleges to the National Tuberculosis association on their case-finding programs. enrolled students. During the past school year, student enrollment at those institutions having survey programs was 286,018. Yet 622 new cases of tuberculosis were diagnosed, a rate of 217.4 per 100,000. This represents an increase of 16 per cent in the number of new cases of tuberculosis found in a student population which was 29 per cent below that of the previous year. It would seem that this reflects considerable improvement in the quality and effectiveness of case-finding procedures at many of our colleges. At many institutions the original tuberculosis program was frequently limited to entering students, whereas in recent years an increasing number have been able to extend their surveys so as to include the entire student body.

There are now 93 universities and colleges which are conducting what may be considered practically ideal programs of tuberculosis control among their students. Seventy-four colleges do routine tuberculin testing and x-ray all positive reactors each school year. Nineteen colleges report that chest x-rays are provided for all students annually, they having dispensed with preliminary testing. Although some of us prefer to have the additional information acquired through the use of the tuberculin test, certainly the programs of both of the above groups of colleges offer a high degree of protection to their students. Cases of advanced tuberculosis among students at these 93 institutions should be encountered very rarely indeed, with such close supervision provided throughout the entire college course.

Reports were received from 114 colleges which do not sponsor any type of tuberculosis program. Student enrollment at these institutions was 121,133. There were 14 students found to have tuberculosis, a rate of 11.5 per 100,000. On the basis of this year's experience, therefore, colleges with case-finding programs diagnosed 18.9 cases of tuberculosis for each case diagnosed at those schools having no program. Surely such evidence should leave no doubt as to the wisdom and value of employing modern case-finding methods in every college.

Of the 622 cases of tuberculosis diagnosed during the year at those colleges having case-finding programs, the lesions were classified as unstable in 156, quiescent in 151 and 315 were designated as healed. Students withdrawing from college to undergo treatment numbered 169. Ninety students were reported to have entered sanatoria for treatment. And again worthy of emphasis, as in previous reports, is the fact that 319 students returned to college after successful treatment of their disease. This provides the best possible proof of the value of early diagnosis and prompt treatment of tuberculosis in the young adult.

The committee again believes it advisable to emphasize the need for active treatment in the majority of cases of tuberculosis found among young men and women of college age. Of the 622 new cases of tuberculosis among September, 1945 323

students, 453 were permitted to remain in college. This is 72.6 per cent of all new cases diagnosed during the year. It seems highly probable that a considerable proportion of this group may experience progression of their disease and will eventually have to undergo treatment. It is known that considerable time may elapse between the development of a new, unstable tuberculous lesion and the appearance of symptoms. Certainly every student who is found to have tuberculosis of recent development should be given the advantage of early treatment. It is not unusual to see almost complete regression and clearing of the minimal, exudative type lesion within a period of six to eight months where treatment at bed rest is instituted before the advent of any symptoms. Reisner and Downes 1 recently reported observation of 469 persons having minimal lesions of pulmonary tuberculosis. All patients were ambulatory and were observed over periods of from two to ten years. Among persons under 25 years of age, 59 per cent of those whose lesions were classified as exudative or exudative-productive at the time of first diagnosis, showed progression of their disease. They found, too, that the risk of progression was highly concentrated within the first year after the diagnosis of tuberculosis. Soper and Amberson 2 advocated prompt treatment for students with minimal tuberculous infiltrations and suggested close supervision of those cases in which the stability of the lesion was in doubt. They state as follows: "The treatment of pulmonary tuberculosis discovered among students requires discrimination, judgment and experience on the part of the physician. Manifestly active cases should be put under treatment at once. In other instances, symptoms are vague or lacking, yet the small pulmonary infiltrations are potentially dangerous and should also be treated promptly and strictly. Only when the lesion is judged to be stable and fibrotic is it justifiable to postpone treatment pending a period of observation. In every case, observation should be at frequent intervals, at first with a roentgenogram every two to three weeks and close clinical study until the stability of the lesion is determined. Apparently stable lesions should be followed with roentgenograms for many years, at first every three months, and never less than once a year."

The college which is attempting to protect its students against tuberculosis should give some thought to the possible dangers of non-student contacts. During the past year, 127 schools provided some type of supervision for their food handlers, while 169 schools reported procedures involving faculty members and various employee groups. The reports indicate that food handlers receive more regular and more complete supervision than do other employees or faculty members. Yet thirty colleges carry out routine testing or x-raying of faculty members, many of these on an annual basis. A few schools report regular supervision of faculty members under 35 years of age, while others specify that those under 30 years are surveyed every year or every two years. During the year there were 59 cases of tuberculosis diagnosed among faculty members and other employees and 18 cases among food handlers. Since the number of food handlers employed by a college is relatively small in comparison with the student enrollment, no great expense is involved in providing annual chest x-rays for this group. Of special interest to the committee is a recent communication from an eastern college in which the college physician stated that beginning in 1945-46 this institution was requiring all faculty members, employees and students to have an annual chest x-ray. They have never previously sponsored any type of tuberculosis program. Their initial effort is, therefore, highly commendable in that every person connected with the institution will be included in the program of annual chest x-rays.

#### TUBERCULIN TESTING PROCEDURES

Each year the committee receives numerous inquiries concerning the validity of the tuberculin test, testing dosage and choice of materials and technics. We must again recommend that the Mantoux method be employed whereby an accurately measured dose of tuberculin is injected intradermally. As to the material, we suggest Purified Protein Derivative-P.P.D.-as first choice. This product permits more uniform standardization, and testing results, as reported by a large number of colleges in all sections of the country, are more nearly comparable. It should be remembered that P.P.D., when made up into the usual testing dilutions, deteriorates very rapidly. It is suggested, therefore, that colleges using this material prepare fresh dilutions daily in order to obtain accurate results. When not in use the solution should be kept under refrigeration. Old Tuberculin is used by 58 institutions and may be relied upon for satisfactory results when supplied by a reputable manufacturer. Quite a number of colleges use the Old Tuberculin prepared by the Saranac Laboratories, Trudeau, New York.

Among 116 colleges reporting the use of the Mantoux test, 33 employ the two dose technic, 32 a single large dose, 23 a single intermediate dose and 28 use a single small dose. Reports by various workers indicate that positive reactions will be obtained to relatively small doses of tuberculin in the presence of recent or significant tuberculious infection or disease. However, approximately 20 per cent of reactors will be missed if only the usual first testing dose of 0.01 mg. O.T. or 0.000,02 mg. P.P.D. is used. It is suggested, therefore, that the regular two dose method be practiced wherever possible.

Fifty-four institutions reported using the Vollmer patch test during the past year. The incidence of positive reactions reported by this group of colleges was significantly lower than that obtained by colleges using the Mantoux method. Table 1 presents the results obtained through use of the Patch test as compared with the Mantoux method employing a single small dose and the regular two doses of tuberculin. Among 9,625 students tested with the patch test there were 8.7 per cent positive reactors. This is less than one third, 31.8 per cent, of the reactions reported when the usual two doses of Old Tuberculin or P.P.D. were used. Those schools which used a single small dose of tuberculin reported 37.5 per cent more positive reactors than did those using the patch test. Since this method is being employed at an increasing number of colleges each year, the various discrepancies which may attend its use among college

students should be kept in mind. For accurate results the tuberculin incorporated in the patch must be in close apposition to the skin for a period of forty-eight hours. Moisture, as from perspiration or from bathing, may readily cause detachment of the adhesive from the skin, dilute the tuberculin and thus render the test valueless. It would seem that in an average college group a considerable proportion of students will not refrain from physical activities which will cause some degree of perspiration. Others will be reluctant to give up their daily showers in spite of the most urgent warning at the time of applying the test. It is known, too, that students have, as a prank, removed the patch material soon after its application, only to reapply it before reporting for a reading. It is quite possible, therefore, that a student with significant pulmonary tuberculosis might be in one of the above groups and have the misfortune to be recorded as negative to tuberculin. At many colleges this student would not be included in the group being given chest x-rays since it is common practice to x-ray only those positive to tuberculin.

Numerous pediatricians have reported highly favorable results with the patch test when used under ideal conditions in young children. Hughes 3 applied the patch test and P.P.D. to a large group of children and sums up his results as follows: "Seventy-eight per cent of all the tuberculin sensitive patients would have been detected by testing with the first strength solution of P.P.D. alone: 89 per cent would have been detected by the patch test alone: and the remaining 11 per cent would have been detected by the second strength solution of P.P.D." Stewart 4 tested 96 children and 90 showed conformity between the patch test and the Mantoux test using 0.1 mg. O.T. Kereszturi 5 of the department of pediatrics, Columbia university, expressed this opinion: "It is clear that the period has not yet arrived when the time-proven Mantoux test can be replaced by an equally reliable contact test." If, as appears likely, a considerable number of colleges continue to use this method of tuberculin testing, it is suggested that the various factors which may contribute to inaccurate results should be guarded against in every way possible. Some persons who show no evidence of reaction, when the patch test is removed after forty-eight hours, will develop reactions somewhat later. It is therefore advisable to make a final reading forty-eight hours after removal of the adhesive tape in all cases showing no reaction or a questionable reaction, at the time of the usual first reading.

Inquiries concerning the validity of the tuberculin test are received by the committee quite frequently. Typical

TABLE 1
Results of Tuberculin Tests in College Students, 1943-44

	Number of Students Tested			Percentage of Positive Reactions		
	Male	Female	Total	Male	Female	Total
Two-Dose Method Up to 1.0 mg, O.T. or 0.005 mg, P.P.D.	2,865	9,144	12,009	33.8	25.3	27.3
Single Small Dose O.T. & P.P.D. Patch Test	2,252 2,452	6,150 7,173	8,762 9,625	16.7 12.0	12.9 7.6	13.9 8.7

TABLE 2

Questionnaire Survey of Tuberculosis Case-Finding in American
Colleges and Universities, 1943-44

Colleges and Univers	ities, 194	3-44	
	stitutions ontacted	Replies Received	Programs Reported
Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut	8 7 9 43 6	3 3 4 26 4 6	3 3 4 21 4 3
New York	85 68	46	38
Pennsylvania New Jersey Delaware Maryland District of Columbia	64 18 1 17 9	27 33 15 0 5	24 11 4 3
Virginia North Carolina	18 21 15 16 7	85 8 13 2 2 3	61 4 8 1 2
TexasOklahoma	77 33 16	28 7	16 3
Oktanoma Arkansas Tennessee Mississippi Alabama Louisiana	11 27 9 13	7 3 4 4 2 2 1	3 2 4 3 1 0
North Dakota	9 8	23	13 1 4
South Dakota Minnesota Wisconsin Michigan Ohio West Virginia Indiana Illinois	8 22 27 25 46 14 27 45	6 19 14 16 26 10 17 23	18 12 12 19 8 15 15 15 17 4
Illinois Iowa Nebraska Kansas Missouri Kentucky	26 16 21 25 17	7 6 10 14 5	3 1 9 7 4 
Montana Idaho Wyoming Nevada Utah Colorado Arizona New Mexico	6 3 1 1 4 9 3 5	174 2 2 1 0 1 7 1 2	1 0 1 0 4 1 1
Washington	32 16 14 35	16 5 6 17	8 5 5 12
Grand Total Previous Year Two Years Ago Three Years Ago Four Years Ago Five Years Ago Six Years Ago	886 879 860 854 857 857 857	28 400 398 488 483 475 282 238	22 286 267 311 304 248 165 133
			1

of these is such a question as, "May we not miss actual cases of pulmonary tuberculosis if we x-ray only those students who react to tuberculin?" Numerous workers have called attention to the high degree of sensitivity to tuberculoprotein found so constantly in persons having significant tuberculous disease. Furcolow 6 and his coworkers reported quite intensive and detailed studies of tuberculin reactions in a large number of children and adults using various dosages of P.P.D. They found that

TABLE 3

New Cases of Pulmonary Tuberculosis Diagnosed Among College Students, 1943-44

Institutions with SOME Organized Tuberculosis Programs No. of cases diagnosed as unstable	
Total new cases reported No. of students who left college because of tuberculosis No. of students returning to college having undergone treatment for tuberculosis No. of institutions reporting	622 160 308 286 286,018
Approximate total enrollment New cases per 100,000 students Institutions with NO Organized Tuberculosis Programs No. of cases diagnosed as unstable 4 No. of cases diagnosed as unstable 5 No. of cases diagnosed as equiescent 5 No. of cases diagnosed as healed 7	217.4
Total new cases reported No. of students who left college because of tuberculous No. of students returning to college having undergone treatment for tuberculous No. of institutions reporting Approximate total enrollment New cases per 100,000 students	14 9 11 114 121,133 11.5
Total Cases of Pulmonary Tuberculosis Disgnosed 1943- Student cases newly disgnosed 196 Food-handlers 19 Faculty, administrative officers, employees, etc. 61 Total new cases	716

adults are slightly less sensitive in their response to tuberculin than children. Among children with a history of contact with tuberculosis, 77 per cent reacted to a dose of P.P.D. which was slightly less concentrated than the usual first testing dose. At this same dosage level, only 6.5 per cent of children with no history of contact gave positive reactions. They summarize their results as follows: "From these observations it appears that most persons with tuberculosis react to a relatively small dose of tuberculin, about 1/10,000 mg. of P.P.D. as was used in this study. In our experience with over 500 cases of tuberculosis, more than 99 per cent reacted to this dose, which is five times more concentrated than the usual first testing dose of P.P.D. Patients with active tuberculosis, both adults and children, who are anergic to tuberculin were not encountered in this study."

The validity of the tuberculin test in cases of significant or recent tuberculous infection and disease is also emphasized by Long. Among 610 cases of pulmonary tuberculous diagnosed at the Henry Phipps Institute during a five year period, only one of this number failed to react to tuberculin. Among the 609 reactors it is noteworthy that 94 per cent of the white and 96 per cent of the colored patients reacted to the first small dose. In observing 2,490 patients over a ten year period, all of whom were originally positive reactors, there were no instances in which the reaction became negative in frank cases of reinfection type pulmonary tuberculosis. There were, however, a few examples of cessation of reacting power in patients with old scarred, latent apical tuberculosis or childhood type tuberculosis.

At the University of Pennsylvania, the writer applied extremely small doses of tuberculin to medical students who were found to have recently developed tuberculous lesions, all of whom had negative chest findings by x-ray six months to one year previously. Dilutions of 1-1,000, 000 and 1-500,000 O.T. were employed. Forty per cent

TABLE 4
Testing Technics in 199 Colleges Reporting Tuberculin Testing

Programs, 1943-44	_
Testing Method:	
Mantoux intradermal	
Vollmer patch test	54
Pirquet	1
Combination Patch and Mantoux	3
Unspecified	16
Testing Material:	
Purified Protein Derivative	6 I
Old Tuberculin	58
Unspecified	58 23
Unspecified Combination of P.P.D. and O.T.	- 3
Testing Dosage:	
Two-dose technic	33
Single large dose	32
Single intermediate dose	23
Single small dose	28
Combination of dosage	- 1
Unspecified	28
	2.0
Testing Routine:	49
All new students, negative reactors annually	49
All new students, all seniors	26
Test optional, available to all annually	29
New students only, no re testing	40
Other testing routine	34
Unspecified	21

of this group reacted to the higher dilution, or a dose of 0.0001 mg. of O.T. This is one one-hundredth of the usually employed first test dose. Of the remainder, none failed to react to the 1-500,000 dilution. A high degree of sensitivity to tuberculin was therefore present in this group of students, all of whom presented pulmonary lesions of recent development which were active and unstable.

At the same institution only one case of the adult or reinfection type tuberculosis has ever been encountered in a student who did not react to the usual test doses of Old Tuberculin. In this student the lesion in the lung parenchyma was quite characteristic of a densely fibrotic and well stabilized process. Apparently, healing had been so complete in this case that all viable bacilli had been eliminated. Tuberculin sensitivity had thus been lost, since tuberculoprotein was no longer being liberated from this healed focus of disease. In the college age group, therefore, instances will undoubtedly be rare indeed where the individual with significant tuberculous disease will not react to the test doses of tuberculin usually employed in the Mantoux method.

The probability of a person becoming sensitized to tuberculin following repeated testing with Old Tuberculin or P.P.D. is sometimes mentioned in the reports of those colleges which retest all negative reactors on an annual or semi-annual basis. Siebert 8,9 has demonstrated that Old Tuberculin and P.P.D. are non-antigenic and do not produce skin sensitivity. Nelson, Mitchell and Brown 10 suggest that sensitization in certain reported studies may have been due to substances in the culture media and not to products of the tubercle bacillus. They applied repeated tests to a large number of children, using both P.P.D. and Old Tuberculin. In one group, ten tests were given to each child over a period of 211 days and in another fourteen tests over a period of 379 days. As a result of their observations they concluded as follows:

"Within the limits of the amounts of tuberculin injected in the various tests of this study, there appears to be no evidence that tuberculin sensitization is induced by

#### TABLE 5

X-Ray Procedures Reported by Various Institutions, 1943-4	4
199 Colleges Reporting Tuberculin Testing Programs:	
Positive reactors filmed once only	46
Positive reactors filmed annually (or oftener)	74
X-ray optional (acceptance quite general)	25
X-ray optional (acceptance not satisfactory)	5
Other X-ray routine	17
Fluoroscope used to supplement routing x-ray	27
Fluoroscope used exclusively (chest x-ray when indicated)	8
83 Colleges Reporting No Tuberculin Testing Program:	
Chest x-ray for all new students	25
Chest x-ray for all students annually	19
Other routine x-ray programs	32
Routine not reported	7

tuberculin injection in man. This does not imply that sensitization to tuberculin or tuberculoprotein is impossible, but does indicate that such sensitization will probably not occur from the ordinary use of tuberculin for skin testing purposes."

The committee believes there is ample evidence to justify the following statements relative to case-finding procedures commonly employed among college students.

1. The incidence of tuberculous infection among college students is steadily decreasing. The majority of reports from colleges in 1943-44 indicate infection rates varying between 15 and 30 per cent.

- The two dose Mantoux method is recommended as the method of choice for tuberculin testing. If a single test dose is employed, an intermediate dose of at least 0.1 mg. O.T., or 0.0001 mg. P.P.D. should be used. The Vollmer patch test cannot be recommended for use in colleges.
- 3. The Mantoux test is highly dependable in eliciting sensitivity due to significant tuberculous infection or disease. It is sound practice, and in the interests of economy, to provide chest roentgenograms for only those students who react to an adequate dose of tuberculin.

- 4. Complete protection against tuberculosis for college students cannot be attained through a program limited to the student body. Faculty members and employees, including food-handlers, should participate in the tuberculosis control program on the same basis as students.
- 5. The lesions of pulmonary tuberculosis encountered in college students are, in a majority of instances, unstable and potentially dangerous. The absence of symptoms does not preclude the necessity for early treatment. Students who remain in college having pulmonary lesions, should be under close observation with frequent clinical and roentgenographic studies.

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Abridged Statement of Extraordinary State Committee of U.S.S.R.\* (Covering Medical Aspects Only)

for the Ascertaining and Investigation of Crimes Committed by the German-Fascist Invaders and Their Associates in the Oswiecim Death Camp

(July 5 there appeared in the press, under Munich and Prague datelines, stories of Bavarian and Czechoslovakian "hospital" camps conducted by the Nazis, in one of which child prisoners were subjected to guinea-pig treatment in "scientific starvation." Coming on the heels of other comparable revelations, the JOURNAL-LANCET deems the medical portion of the Russian report of sufficient importance to physicians of the United States to warrant publishing.)

HE Oswiecim camp was built in 1939 on orders from SS Reichsfuehrer Himmler, especially for the destruction of enslaved citizens of the occupied countries of Europe. The camp occupied a huge area around the city of Oswiecim and consisted of a whole chain of camps: Auschwitz, Birkenau, Monowice, Golesau, Jawisowic, Neidachs, Blechamer, and others. From 180,000 to 250,000 prisoners were always confined in the camps at Oswiecim.

On the basis of interrogation and medical examination of 2,819 prisoners of Oswiecim camp who were saved
\*From the issue of May 29, 1945 (Vol. V, No. 54), Information Bulletin of the Embassy of the Union of Soviet Socialist
Republics, Washington, D. C. by the Red Army; a study of German documents discovered in the camp; the remains of the crematorium and gas chambers blown up by the Germans as they retreated; bodies found on the territory of the camp, and belongings and documents found in camp warehouses and barracks of the people from various countries of Europe who were killed by the Germans, it has been established that:

- 1. German professors and doctors conducted in the camp so-called "medical" experiments on living men, women and children.
- 2. In the degree of premeditation, technical organization, and mass scale and cruelty of murder, the Oswiecim camp leaves far behind all German death camps known hitherto.

Special hospitals, surgical wings, histological laboratories and other institutions were established at the camp, but they existed not to treat people, but to kill them. German professors and doctors carried out wholesale September, 1945 327

experiments on perfectly healthy men, women and children in these institutions. They conducted experiments in sterilizing women and castrating men and boys, in infecting large numbers of people with cancer, typhus and malaria, conducting observations upon them; they tested the action of poisons on living persons.

#### MEDICAL EXPERIMENTS ON LIVING PEOPLE

In Oswiecim camp the German-fascist professors and doctors widely practiced medical experiments on living persons, displaying monstrous inventiveness.

Among the prisoners saved by the Red Army, Doctors Scheiberg of Paris, Gordon of Vilnius, Professor Grossman of Yugoslavia, Ervin Valentin of Berlin, Anna Keppich of Hungary, Edward Devind of Holland, and Albert Flechner of Paris, stated that they had been eyewitnesses to a vast number of medical experiments on camp prisoners by German-fascist professors and doctors.

Surgical operations were performed at the caprice of the German doctors to practice operation technique. Koenig, a young German doctor, selected prisoners with inflammatory processes in the extremities, and practiced amputation. The German doctors Tillo and Fischer assembled large numbers of prisoners, and with no cause performed hernia operations on them. At the slightest complaint of a stomach pain, Enders, head doctor of the hospital, practiced operating on an ulter of the stomach.

Experiments on women were conducted in the hospital wards of the Auschwitz camp. Up to 400 women prisoners were confined in the tenth wing of the camp where experiments were carried out on sterilization by x-ray and subsequent removal of ovaries; on transplanting cancer to the cervix of the uterus; on forced childbirth, and on testing substances for roentgenography of the uterus.

In wing No. 28, experiments on inflicting skin injuries with kerosene, various salts, pastes and powders were performed on prisoners. Here also akrichine was used with the purpose of studying invoked jaundice. These experiments were performed by Doctor Emil Koschub.

On instructions from the Extraordinary State Committee, in the course of February and March, 1945, the prosecution department of the First Ukrainian Front carried out jointly with D. I. Kudryavtsev and T. Kuzmin, representatives of the Extraordinary State Committee, a thorough investigation of German crimes in the Oswiecim camp.

The following special commissions of experts took part in the investigation:

A Medico-Legal Commission made up of F. F. Bruzhin, Chief Medico-Legal Expert of the First Ukrainian Front; M. G. Schursanov, Medico-Legal Expert of the Army; I. I. Pertsov, therapeutist; N. A. Lebedev, Chief of the Laboratory of Pathological Anatomy of the Army; G. A. Kolegayev, gynecologist of the Army; N. R. Vannovsky, psychiatrist; N. I. Gerasimov, criminologist; and prisoners of the camp B. V. Epstein, Professor of Pediatry, Director of the Clinic at Prague University; G. G. Limousin, Professor Pathological Anatomy and Experimental Medicine of the city of Clairmont-Ferrand, France, and M. J. Grossman, Docent of the School of

Medicine in Zagreb, Yugoslavia; and a Technical Commission made up of Professors Roman Dawidovski and Jaroslaw Dolinski of Cracow; engineer V. F. Lavrushin, Candidate of Chemical Sciences, and engineer A. M. Shuer.

In wing 21, wholesale experiments were performed in castrating men with the purpose of studying the possibility of sterilization by x-ray. Castration was carried out at a definite interval after the rays had been employed. Professor Schuman and Doctor Dering engaged in such experiments with x-rays and castration. Not infrequently the operations consisted in removing one or both testicles for study after the person had been x-rayed.

All these facts are confirmed as well by ex-prisoners of the camp: Judith Klein, Klara Ausen, Mina Garbman, Nona Sonders, Jakob Skurnik, David Sures, and many others upon whom the German doctors carried out

one or another experiment.

On orders from Enders, chief German doctor, between 1941 and 1944 prisoners in the camp hospital were put to death by injections of phenol into the heart. The first injections were made by the doctor and later ones by orderlies. The German Kler, a former shoemaker, particularly distinguished himself in this field by killing thousands of victims. A Polish prisoner by the name of Panszczik did 12,000 persons to death by phenol injections (subsequently he was killed by Polish prisoners themselves). Stess, a German, murdered 10,000 persons by such injections.

The facts of the inhuman experiments on prisoners are also confirmed by a number of documents found in the camp office. A report of the surgical department of the camp hospital records that in three months between October and December, 1943, surgeons of the department carried out, among other operations, the following: 89 testicle amputations (castration), 5 sterilizations, 5 removals of ovaries.

In telegram No. 2678, dated April 28, 1943, Colonel Sommer, SS Obersturmfuehrer, instructed the office of the camp commandant to list 128 women under the heading "prisoners for experiments." In a discovered "statistical review by the camp commandant of the number of women prisoners and their distribution in various categories," signed by Sell, assistant camp commander, there is a permanent heading, "Prisoners intended for various experiments." Recorded under this heading are 400 "women under experiment," on May 15, 1944; 413 on June 5, 1944; 348 on June 19, 1944; 349 on July 30, 1944, etc.

German doctors played a leading role in selecting the prisoners for gassing and cremation. They conducted the selection everywhere: near crematoriums, in hospitals, and in barracks. The weak, sick, and disabled were dispatched to the gas chambers by the German doctors. The following German doctors engaged in selecting prisoners for annihilation: Wirtz, Mengele, Rode, Fischer, Tillo, Kitr, Koenig, Klein, and many others.

On orders from Wirtz, head German doctor of the

On orders from Wirtz, head German doctor of the Oswiecim chain of camps, during the typhus fever epidemics, inmates of entire barracks were put to death by means of gas asphyxiation. The Medico-Legal Commission has established that German doctors in Oswiecim carried out the following experiments on living persons:

- 1) Mass resection of tissue of cervix of the uterus, or even complete removal of the latter.
- 2) The testing of a number of unknown substances for roentgenography of the uterus and fallopian tubes. With special instruments these substances were injected under pressure into the cavity of the uterus, which frequently entailed excruciating pain for the victims upon whom the experiments were performed.
- 3) Sterilization of women by x-raying the pelvic region, with subsequent opening up of the abdomen and removal of the ovaries. These experiments were carried out chiefly on young women.
- 4) A study of the action of various chemical preparations, by orders of German firms. Doctor Erwin Valentin, a German, testified that there was a case when Glauber, a gynecologist from Koenigshuette, and Gebel, a chemist, representatives of the chemical industry of Germany, bought 150 women from the camp management for such experiments.
  - 5) Sterilization of men by x-rays.
- 6) Experiments on men involving the application of irritants to the skin or shin to evoke ulcers and phleg-
- 7) A number of other experiments, such as infection with malaria, artificial insemination and the like.

A great many of the experiments ended in a rapid and torturous death for the prisoners. After the prisoners had been fully utilized for experiments, they were killed and cremated. By this means the Germans strove to remove witnesses to their inhuman experiments.

Ex-prisoner Samuel Abramovich Stern, a resident of the city of Bucharest, who was interrogated as a witness, testified: ". . . I worked in Auschwitz camp as a male nurse. On orders from Oberfeldwebel Koschub I made injections and did other things to prisoners. I know for a fact that kerosene was injected under the skin of the shin on many patients . . . A second method of experimentation was chemical irritation of the skin. Used for this purpose was an 80 per cent solution of aluminum acetate. After this, a whole layer of skin was removed and sent for analysis. In cases of deep irritation of the skin, part of the flesh was cut out together with the skin and sent for analysis. Koschub also invoked jaundice and performed transfusion operations with the blood of malaria patients."

M. Valigura, who was subjected to experiments, stated ". . . Several days after I had been brought to Birkenau—it seems to me it was in the beginning of December, 1942—all young men between the ages of 18 and 30 were sterilized by subjecting the scrotum to x-rays. I was among those sterilized. Eleven months after I had been sterilized, that is, November 1, 1943, I was subjected to castration . . . 200 other persons were subjected to sterilization on the same day as I . . ."

Witness David Sures of the city of Salonika, Greece, gave the following testimony. ". . . About July, 1943, I and 10 other Greeks were registered in some sort of a list and sent to Birkenau. There we were stripped and

subjected to sterilization by x-rays. A month after sterilization we were summoned to the central section of the camp, where all who had been sterilized were subjected to a castration operation. . . . "

Ex-prisoner M. Hauser (Nine, Cite Milton, Paris) stated " . . . In Auschwitz we were placed in the tenth wing. We did not know why we had been taken there. This wing contained the hospital section and we were all perfectly healthy women . . . At first in the tenth wing they took a blood sample from me; for what purpose I don't know. At the end of August, 1943, I was taken to the operating room and anesthetized, and an operation was performed on my genital organs. The operation was performed by Doctor Samuel, a prisoner, under the supervision and on the instructions of the German doctor Wirtz. After this operation, I lay ill for 11 months in the tenth wing. Among those who were sterilized was a Jewess from Greece named Bela. I don't know her last name. After x-rays her abdomen was cut open lengthwise. After the operation she recovered and the wound on the abdomen healed. The German doctor Schuman came to the tenth wing and as a control case took Bela to the twenty-eighth wing and then cut open her abdomen crosswise. I myself saw the crosswise cut on her abdomen. Several days later, Bela died."

It has been established by investigation that from three to five trains, each carrying between 1,500 and 3,000 people destined to be done to death, arrived every day in Oswiecim. The victims were brought from all countries of Europe. Among the 2,819 prisoners released from the Oswiecim camp and subjected to examination by the Medico-Legal Commission were 745 from Poland, 542 from Hungary, 346 from France, 315 from Czechoslovakia, 180 from the USSR, 159 from Holland, 143 from Yugoslavia, 91 from Italy, 76 from Greece, 52 from Rumania, and 41 from Belgium.

Between 200 and 500 of the more able-bodied were chosen from each trainload for various work in the camp; the rest were sent straight to the gas chambers and crematoriums.

As has been established by the investigation, besides the persons used for the purposes of experiments, some 200,000 prisoners were kept permanently in the Oswiecim camps for exploitation in all kinds of hard labor. Persons thus occupied were driven to a state of extreme exhaustion, after which, being unfit for work, they were done away with.

The Medico-Legal Commission which examined 2,819 Oswiecim prisoners rescued by the Red Army established that 2,189, or 91 per cent, were suffering from extreme physical exhaustion, while 223 had tuberculosis of the lungs. It was likewise established that the Germans had subjected the prisoners to physical torture, as a result of which the Commission found the people suffering from broken ribs, limbs, spines and facial bones, also various wounds, ulcers, and frozen hands and feet. Very many of the released prisoners are suffering from serious nervous and psychiatric ailments.

The Medico-Legal Commission performed autopsies on 536 bodies of prisoners found in various parts of the territory of the camps. It has been established that in September, 1945 329

474 cases (88.3 per cent) death resulted from exhaustion.

Hundreds of thousands of children, from infants to 16-year-olds, were slaughtered by the Hitlerites in Oswiecim camp. As a rule, children who arrived by train were immediately sent to the gas chambers. Only a few healthy juveniles were retained for work in the camps.

Investigation has established that children between the ages of 8 and 16 were forced to perform hard physical labor along with adults. Heavy labor, torture and beatings soon reduced the children to a state of complete collapse, whereupon they were murdered.

Doctor Jacob Gordon, a former prisoner from Vilnius, testified: "In the beginning of 1943, 164 boys were selected in the Birkenau camp and taken to a hospital, where they were done to death by injection of carbolic acid into the heatt."

#### TESTIMONY OF CHILD PRISONER

Andreas Lerinciakos, a nine-year-old boy from Cles, Hungary, testified: "When we were taken to Wing No. 22 in the camp we were beaten by German women who were put in charge of us. They beat us with sticks. While I was in the camp, Doctor Mengele took my blood many times. In November, 1944, all the children were transferred to camp A, the 'gypsy' camp. When they countered us, one was found missing, so Branden, manageress of the women's camp, and her assistant, Mendel, drove us out into the street at one o'clock in the morning and made us stand there in the frost until noon the next day."

Children born in camp were taken from their mothers by the SS and put to death. Pregnant women among new artivals were immediately sent to a special barrack where premature birth was induced. Women who resisted were sent at once to the gas chamber.

Sofya Isakovna Flax, an ex-prisoner from Cracow, testified: "Many of the women who arrived in August, 1944, had children aged between 5 and 12. All of them, together with their mothers, were sent to the crematoriums. I was in the seventh month of pregnancy when I arrived. SS Doctor Koenig, who examined me, sent me to barracks V-3, Birkenau. There were 65 women there in a simular condition. Three days later I was given an infection in the hip to induce premature birth. The mjections were made four days in succession. On the fifth day I gave birth and my child was taken away. There were 14 similar cases while I was in the barracks. No one knew where the infants were taken.

Among the prisoners released from Oswiecim and examined by physicians were 180 children, including 52 aged 8, and 128 between the ages of 8 and 15. All of them arrived in camp in the second half of 1944, which means that they spent from three to six months in the camp. A medical examination of these children established that 72 of 180 are suffering from lung and glandular tuberculosis, 49 from alimentary dystrophy, 31 from frostbite, etc.

In the Oswiecim camp the German exterminated tens of thousands of prominent scientists and representatives of the intelligentsia of different countries. Andre Foudrie, from the town of Samot Dipuen, told the Commission the following: "Most of the 600 Frenchmen with whom I arrived in the camp perished within a few months. Among them were Emil 'Bureau, economist; Professor Joan of the Lyceum of Compiegne; Philippe Geronne, deputy from the Department of Lot; Lebigoux, Mayor of the town of Villevit; Godeau and Broux, schoolteachers; Molyneux, architectural engineer, etc."

Professor Henri Limousin of Clairmont-Ferrand University, stated: "In November, 1944, I was taken from Dachau camp and sent to Oswiecim as a specialist on pathology. I spent about a month here in the quarantine block, where I was made to clean lavatories, wash floors and carry food to prisoners in jail."

Among those murdered in the Oswiecim camp were Professor Freyda, well-known Dutch economist; Doctor Lawoslaw; engineer Kimar; Doctor Endoklyan, an engineer from Yugoslavia; Wisnievski, a Polish engineer; Teichert, a pharmacist from Warsaw; Polish professors Geszcikiewicz and Rubarski; Czechoslovak professors Otto Sitik, neuropathologist, Leo Tausik, psychiatrist, Jan Levit, surgeon; Kraus, a famous lawyer from Vienna; Doctor Jaube, a French army doctor with the rank of general, and many, many others. They were all tortured to death by hard labor, or else suffocated in gas chambers.

The commission of technical experts established that during the existence of the Oswiecim camp the German executioners killed in it no less than four million citizens of the USSR, Poland, France, Yugoslavia, Czechoslovakia, Rumania, Hungary, Bulgaria, Holland, Belgium and other countries.

The monstrous crimes committed by the Germans in the concentration camps of Oswiecim were perpetrated in keeping with the directives issued by the Hitlerite government and were under the leadership of hangman Himmler, Reichsfuehrer of the SS and Police. The immediate executors of the crimes were Lieutenant General of SS and Police Glueks, Chief of Camps of all Germany; General of SS and Police Pohl, Chief of the Central Sanitary Administration of Concentration Camps; SS Major General Kammler, Chief of Concentration Camp Construction; Oberscharfuehrer Palitsch, SS Obersturmfuehrer Sommer, and 27 other officers (all named in the report); camp doctors Major Doctor Schmitt, in charge of experiments; Obersturmfuehrer Doctor Mengele; Untersturmfuehrer Koenig, Rotenfuehrer Rode, Obersturmfuehrer Doctor Fischer, Obersturmfuehrer Doctor Klein, Doctor Dering, Hauptsturmfuehrer Doctor Wirtz, Obersturmfuehrer Doctor Tillo, Sturmbannfuehrer Doctor Klauberg, Professor Schuman, Doctor Waber, Oberfeldwebel Emil Koschub, Obersturmfuehrer Enders, Hauptsturmfuehrer Doctor Geotmerman, Hauptsturmfuehrer Doctor Kitt, Hauptsturmfuehrer Doctor Horstman, and Hauptsturmfuehrer Doctor Kraus.

All these persons, just as all those Germans who personally participated in the murder and torture of the prisoners of Oswiecim, must be brought before the court of nations and pay the severe penalty they merit.

## Transactions of the South Dakota State Medical Association

Sixty-fourth Annual Session Watertown, South Dakota June 9, 10, 1945

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MEDICAL SERVICE AND DURLIC DELATIONS

#### ANNUAL MEETING OF THE COUNCIL OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

#### First Session, Saturday, June 9, 1945

The meeting, held at Hotel Lincoln, Watertown, South Da-kota, was called to order at 8:20 P.M. by the chairman of the council, Dr. W. E. Donahoe, Sioux Falls. On roll call the following officers and councilors were present:

President, D. S. Baughman, Madison; president-elect, Wm. Duncan, Webster; vice president, F. S. Howe, Deadwood; sec-

Duncan, Webster; vice president, F. S. Howe, Deadwood; sec-retary-treasurer, R. G. Mayer, Aberdeen; delegate to the Ameri-can Medical Association, N. J. Nessa, Sioux Falls. Councilors: Second district, H. R. Brown, Watertown; third district, G. E. Whitson, Madison; fourth district, C. E. Robbins, Pierre; fifth district, W. H. Saxton, Huron; sixth district, J. R. Lloyd, Mitchell; seventh district, W. E. Donadistrict, J. R. Lloyd, Mitthell; seventh district, N. E. Dona-hoe, Sious Falls; ninth district, R. E. Jernstrom, Rapid City; twelfth district, D. A. Gregory, Milbank. The following coun-cilors were absent: First district, J. L. Calene, Aberdeen; eighth district, E. M. Stansbury, Vermillion; tenth district, R. V. Overton, Winner; eleventh district, C. E Lowe, Mobridge. Drs. Gilbert Cottam, A. Triolo, L. J. Pankow, J. A. Kitel-son, W. G. Magee, H. T. Kenney, and our legal advisor, Mr

Karl Goldsmith, were also present.

The minutes of the December meeting were read and approved. The report of the secretary-treasurer was read and referred to the committee on auditing and appropriations. The chairman appointed Drs. H. R. Brown, C. E. Robbins and D. A. Gregory as the committee on auditing and appropriations.

The reports of the councilors for each district were received First district. R. G. Mayer reported only one district meeting held during the past year. Membership fair, but should be better.

Second district. H. R. Brown reported five meetings, more social than scientific, membership good.

Third district. G. E. Whitson reported his society functioning well as usual, with regular meetings being held every two or three months.

Fourth district. C. E. Robbins presented a written report, with membership good, four meetings held during the year.

Fifth district. W. H. Saxton reported two meetings during the year and eleven members paid up, but dues not forwarded to the secretary of the state association.

Sixth district. J. H. Lloyd reported only one meeting held during the year and membership not as good as it should be.

Seventh district. W. E. Donahoe reported excellent membership and regular monthly meetings held except during the summer months.

Eighth district. No report, but President D. S. Baughman reported district as very active and in good condition.

Ninth district. R. E. Jernstrom reported good membership

and four regular meetings held during year.

Tenth district. No report, but President D. S. Baughman reported district as functioning well with small membership available.

Eleventh district. No report, but President D. S. Baughman reported no meetings held,

Twelfth district. D. A. Gregory reported good membership and three meetings held during year.

As delegate to the A.M.A., N. J. Nessa teported that no

meeting is scheduled for 1945 unless the ODT grants permission, which so far has been refused.

Dr. A. Triolo, chairman of the committee for study of reasons for rejection of selectees in South Dakota, reported that data for study was not yet available. The secretary read a letter from the Nebraska state medical association regarding the Children's Bureau, U. S. Department of Labor, which was referred to the committee on maternal and child welfare and the E.M.I.C. committee. A letter from the South Dakota osteopathic association regarding senate Bill 62 was read by the secretary. A motion was made by C. E Robbins, seconded by Wm. Duncan, and carried, that the letter be referred to the committee on public policy and legislation. The committee referred it to Drs. Baughman and Duncan to draw up a resolution and present it to the house of delegates

Mr. Karl Goldsmith, legal advisor, gave an informal report

on legislation, discussing SB 160, the enabling act for prepayment medical care; SB 108, Blue Cross legislation; HB 10, the bill regarding the appointment of members of county boards of health; and HB 21, the bill which permits any licensed doctor to practice in county hospitals. General discussion on these matters followed, among those taking part in the discussion being Drs. Duncan, Baughman, Robbins, Brown, Whitson, Pankow, Jernstrom and Kittleson. On motion the meeting adjourned at 11 P.M.

#### R. G MAYER, M.D., Secretary

#### Second Session, June 10, 1945

The second session of the council was called to order by the chairman, Dr. W. E. Donahoe, Sioux Falls, at 5 P.M. chairman made a few remarks, stating that he had enjoyed working with the councilors for many years and that he regretted that ill health made his retirement necessary. On roll call the following were present: Baughman, Duncan, Howe, Mayer, Nessa, Brown, Robbins, Saxton, Lloyd, Donahoe, Pankow, Gregory.

The next order of business being election of a chairman, Dr. C. E. Robbins, Pierre, was nominated by D. A. Gregory. A motion that nominations be closed was made by J. H. Lloyd, seconded by F. S. Howe, and carried, and C E. Robbins declared elected chairman.

The matter of a new councilor for the Watertown district, since Dr. H. R. Brown had been elected vice president, was referred to the Watertown district for recommendations, on motion by Gregory, seconded by Lloyd and catried. The time and place of the 1946 annual meeting was referred to the president and secretary. The meeting adjourned at 5:30 P.M. R. G. MAYER, M.D., Secretary.

#### SECRETARY'S REPORT-1944-45

The report of your secretary for the past year will be very brief. The number of magazines and pamphlets, letters received and answered, ran well into the thousands. Mimeographed letters were mailed to the members on various subjects: war bond drives, state legislature candidates and members, legislative bills affecting the medical profession, basic science board finances, meetings, etc. Numerous letters, telegrams and telephone calls were exchanged with officers, councilors, district secretaries and members regarding state medical association matters.

Two medical conferences were attended, the annual conference of state secretaries and editors in Chicago in November and the North Central medical conference in St. Paul in December. South Dakota was well represented at the St. Paul conference, Drs. Baughman, Nessa, Calene, Brown, Whitson, Lloyd, Sherwood, Cottam and Triolo being present.

It was impossible to attend any district society meetings the past year. I hope that I can visit a majority of the districts the coming year.

The finances of the association are in good condition as you will see from my report as treasurer. The membership of the association is gradually decreasing. This is partly due to the fact that the number of physicians in the state is decreasing steadily, but also because the district societies do not hold enough interesting meetings to keep the interest of the membership alive, and not enough effort is put forth to enroll every eligible physician as an active member.

The following is the analysis of the active membership, showing a comparison of last year's figures at convention time, and total membership attained by the close of the year, non-members, honorary members and members in the armed services:

			May	Dec.	May	Non-	Hon-	Armed
	District		1944	1944	1945	Members	orary	Service
1.	Aberdeen		28	28	28	11	1	4
2.	Watertown		18	19	18	4	0	3
3.	Madison		18	19	17	2	2	1
4.	Pierre		13	14	15	4	1	3
5.	Huron		13	15	0	15	0	2
6.	Mitchell		24	24	· 22	9	2	4
7.	Sioux Falls		44	44	42	6	フ	9
8.	Yankton		24	25	27	14	· 2	4
9.	Black Hills		40	41	39	15	26	15
10.	Rosebud		5	5	4	1	0	1
11.	Northwest		10	8	7	0	0	3
12.	Whetstone	Valley	13	13	12	4	0	1
	T	otals	250	255	231	85	41	50
				R. G.	MAYER	, M.D.,	Secret	ary.

#### TREASURER'S REPORT-1944-45

Balance on hand May 18, 1944\$3,715.90
Receipts:
Net convention receipts, 1944\$ 55.31
1944 dues, 7 members 105.00
1945 dues, 231 members 3,465.00

	Total	\$3	,625.31	
Disbursements:		Total		\$7,341.2
			24554	
1944 convention expenses			346.56	
Journal-Lancet subscript			504.00	)
Legislative fund		********	500.00	)
Benevolent fund			125.00	)
North Central conference	(2 years)		100.00	)
A.M.A. delegate expenses,	1944		74.00	)
Refund—Dues Northwest	district _		30.00	)
Council and officers expens	es		241.71	
Karl Goldsmith, retainer	(13 month	ıs)	325.00	}
Karl Goldsmith, legislative	expenses		350.39	)
Secretary's salary (13 mon			650.00	)
Secretary's traveling expen	ses		173.32	

Secretary's Office Expenses: Bank charges			
	Total	288.80	
Balance on hand June 7, 1945	Total		
(Checking Account, First Natio Aberdeen, So. Dak.)	Total		\$7,341.21
LEGISLAT Balance on hand May 18, 194- Deposit from checking account Interest	***************************************	500.00	
Savings Account, First Natio		\$ 790.28 perdeen, S	o. Dak.)

## PROCEEDINGS OF THE 64TH ANNUAL MEETING OF THE HOUSE OF DELEGATES

R. G. MAYER, M.D., Secretary-Treasurer.

South Dakota State Medical Association Morning Session, June 10, 1945

The morning session of the house of delegates was called to order by the president, Dr. D. S. Baughman, Madison, at 10:00 A.M., June 10, 1945, at the Hotel Lincoln, Watertown, S. D. The roll call was read by the secretary and the following members were present:

Drs. D. S. Baughman, Madison; Wm. Duncan, Webster; F. S. Howe, Deadwood; R. G. Mayer, Aberdeen; N. J. Nessa, Sioux Falls; H. R. Brown, Watertown; C. E. Robbins, Pierre; William Saxton, Huron; J. H. Lloyd, Mitchell; W. E. Donahoe, Sioux Falls; R. E. Jernstrom, Rapid City; D. A. Gregory, Milbank; E. A. Rudolph, Aberdeen; H. T. Kenney, Watertown; E. S. Watson, Brookings; M. M. Morrissey, Pierre; L. J. Pankow, Sioux Falls; C. J. McDonald, Sioux Falls; J. A. Kittleson, Sioux Falls; A. P. Reding, Marion; G. W. Mills, Wall; D. L. Kegaries, Rapid City; W. L. Meyer, Sanator; O. S. Randall, Watertown; W. G. Magee, Watertown. A motion was made by L. J. Pankow, seconded by D. A. Gregory, and carried, that since the minutes of the previous

A motion was made by L. J. Pankow, seconded by D. A. Gregory, and carried, that since the minutes of the previous session were published in the JOURNAL-LANGET, their reading be dispensed with. The president appointed the following reference committees: committee on reports of officers—Kenney, McDonald, Reding; committee on resolutions and memorials—Nessa, Robbins, Watson; committee on amendments to constitution and by-laws—Saxton, Donahoe, Meyer; committee on nominations—Gregory, Kittleson, Randall; committee on credentials—Mills, Pankow, Rudolph.

The reports of the officers were next heard. The president, Dr. D. S. Baughman, reported that he had visited all but two of the twelve district societies during the year. He said that the strength of the state association lies in the district societies and hoped that they would all work better during the coming year. He also reported that he had attended the annual meeting of the American Medical Association, and the North Central conference in St. Paul (where South Dakota was well represented, there being ten physicians from the state in attendance). The president-elect, Dr. William Duncan, Webster, said that he would try to build up the legislative program during the year, that because of the shortage of physicians in South Dakota all of them were suffering from chronic fatigue, but they should remember that the important thing was what each one did for the society-not what the society did for them. Vice President F. S. Howe, Deadwood, said that from the reports of the component societies all of them were not functioning as they should, socialized medicine was the big problem, the people are sold on prepayment plans and if we do not do it the government will. Regarding the legislative program, he said that it was very important to contact the legislators at home. The

secretary-treasurer read his report and the minutes of the council meeting. The reports were referred to the committee on reports of officers.

The reports of the standing committees were then heard. The committee on scientific work reported that since no scientific session was planned for the 1945 meeting the committee had nothing to report. For the committee on public policy and legislation oral reports were made by Drs. Baughman and Duncan and Mr. Karl Goldsmith and a letter summarizing the action of the legislature on bills affecting the medical profession was presented. Dr. Duncan mentioned a letter received from the South Dakota osteopathic association regarding senate Bill 62, referring to the licensing of hospitals. Mr. Goldsmith also referred to a resolution passed by the state pharmacists association requesting membership on the state board of health. He said that this would lead to the licensing of pharmacists by the state board of health, which the pharmacists would not want and he suggested that the members of the medical profession talk to their pharmacists regarding the matter.

An oral report by the chairman of the committee on publications stated that the contract with the JOURNAL-LANGET still
had three years to run, more news items, editorials and scientific articles were needed from South Dakota. Mr. M. Wolft,
of the JOURNAL-LANGET, Minneapolis, Minna, was called upon
for remarks and he suggested that component societies have
more scientific sessions and have papers published in the
JOURNAL-LANGET. Of 130 contributions only six were from
South Dakota, outside of papers read at the state convention,
and three of these were from the Black Hills district. North
Dakota had fourteen, Montana five, and Minnesota stay-one.
He also stated that the JOURNAL-LANGET would be glad to send
complimentary copies to non-members in South Dakota occastonally in order to interest them in the state medical association, and that the publishers would always welcome suggestions
for improvements.

A letter from the chairman of the committee on medical defense, Dr. T. F. Riggs, Pierre, was read. The subject was discussed by Dr. L. J. Pankow, Sioux Falls, and a motion was made, seconded and carried that the file on this subject be referred to the new committee on medical defense. Th reports of the committee on medical education and hospitals and the committee on medical economics were read, and all of these reports of committees were referred to the committee on resolutions and memorials.

Dr. A. Triolo, chairman of the committee on public health, had the chairmen of the various sub-committees present their reports. Dr. O. S. Randall, chairman of the sub-committee on cancer, presented a written report, as did Dr. W. L. Meyer, for the sub-committee on ruberculosis. The sub-committee on mental hygiene and child welfare had no report. On motion the meeting adjourned at 12:15 P.M. until 2:00 P.M, for dinner at the Watertown country as guests of the Watertown district medical society.

#### Afternoon Session

The meeting was called to order at 2:15 P.M. by the president, Dr. D. S. Baughman. On roll call the following were present: Drs. Baughman, Duncan, Howe, Mayer, Nessa, Brown, Robbins, Saxton, Lloyd, Donahoe, Gregory, Rudolph, Kenney, Watson, Morrissey, C. S. Bobb, Pankow, Kittelson, Reding, Mills, Kegants.

The report of the sub-committee on syphilis control program was read by Dr. Gilbert Cottam, Pierre. The report of the committee on necrology, Dr. E. Joyce, Hurley, chairman, was read, as was the report of Dr. W E. Donahoe, chairman of the committee on medical benevolence.

The written reports of the following special committees were then read: Radio broadcast, editorial, medical licensure, radiology, medical service and public relations, prepayment and insurance plans, maternal and child welfare, and E.M.I.C., and referred to the committee on resolutions and memorials. Dr. Wm Duncan gave an oral report for the committee on military affairs, stating that the list of South Dakota physicians in the atmed services would be published in the JOURNAL-LANCET, two having been added since the last annual session No reports were received from the committees on advicery womens?

auxiliary, allied group, ophthalmology and otolaryngology, orthopedics, social security, and industrial health.

The committee on credentials reported that 25 members were present at the morning session, every district being represented except the tenth and eleventh. The committee on nominations reported the following nominations: President-elect—F. S. Howe, Deadwood, D. S. Baughman, Madison; vice president—H. R. Brown, Watertown, N. J. Nessa, Sioux Falls; councilors: third district—G. E. Whitson, Madison; fifth district—Win. Saxton, Huton; sixth district—H. Lloyd, Mitchell; seventh district—L. J. Pankow, Sioux Falls; and recommended that the time and place of the 1946 convention be left to the officers. Drs. D. S. Baughman and N. J. Nessa withdrew their nominations. Since there were no contests, a motion was made by D. A. Gregory, seconded by William Saxton, and carried, that the rules be suspended and the nominees be elected by acclamation.

Dr. William Saxton, chairman of the committee on amendments to the constitution and by-laws, reported that his committee had no report except a suggestion that at the next annual session an amendment to the by-laws be submitted so that the house of delegates may name a substitute for any officer or councilor who is absent. Dr. H. T. Kenney, chairman of the committee on reports of officers, reported that his committee approved of the reports of the officers as given, and moved the adoption of the report, which was seconded and carried.

Dr. N. J. Nessa, chairman of the committee on resolutions and memorials, presented the report of his committee, recommending the approval of the reports of all of the committees referred to it with the following additional recommendations: regarding the report of the committee on medical education and hospitals it recommends further study of the facts regarding the four-year medical school plans by a special committee to be appointed by the president and report to the council at its next meeting. A motion to this effect was made by Nessa, seconded by Robbins and carried.

A report of a special committee on child welfare and E.M.I.C., consisting of Drs. Donahoe, Jernstrom and Duncan, was as follows: "The Journal of the American Medical Association, March 3, 1945, carried an article regarding Recommendations adopted by the Steeting Committee on Health Services Advisory to the Children's Bureau, U. S. Department of Labor, Washington, D. C., January 28th 'This proposes to give the children's bureau almost unlimited powers. It puts the bureau into the field of public health where it in no wise belongs. It places a large section of the practice of medicine under the domination of a lay-controlled bureau." It is resolved by the South Dakota state medical association that all such medical programs follow medical collaboration and direction, rather than lay groups and people, an increase in federal appropriations to the children's bureau at this time is opposed, and it is resolved that the secretary be instructed to forward copies of this resolution to the South Dakota state board of health, the children's bureau in Washington, D. C., its advisory medical committee, and the South Dakota representatives and senators in Congress. A motion to adopt the above resolution was made by W. E. Donahoe, seconded by J. H. Lloyd and carried.

A motion that a resolution of thanks to the Watertown disrict medical society for their kind hospitality be presented was seconded and carried. The committee on auditing and appropriations presented its report. A motion was made by H R. Brown, seconded by J A Kittleson, and carried, that the report be adopted and the estimated budget for 1945-46 be approved

Under new business there was discussion of matters relating to examinations conducted by the state board of medical examiners and the basic science board of examiners, and an amendment to the basic science act was suggested to provide for an annual registration fee to raise funds for its administration. A motion was made by L. J. Pankow, seconded by J. A. Kittleson, and cateried, that the matter be referred to the committee on public policy and legislation. A motion to adjourn was made by N. J. Nessa, seconded by William Duncan, and carried at 4:45 P.M.

R G. MAYER, M.D., Secretary.

#### Committee on Auditing and Appropriations

Vouchers, checks, bank books, remittances from various district societies, disbursements and all records were examined and found in order and the books balanced.

#### Estimated Budget, 1945-46

Estimated Income	\$3,9
Estimated Disbursements:	• •
Retainer, attorney	\$300.00
Secretary's salary	
Journal-Lancet	550.00
Secretary's office expenses	300.00
Secretary's traveling expenses	150.00
Council meeting expenses	250.00
Benevolent fund	
Legislative fund	500.00
North Central conference	
Miscellaneous	325.00

Total 3,150.00

Estimated Balance .\$ 750.00 H. R. Brown, M.D.

D. A. GREGORY, M.D. C. E. ROBBINS, M.D.

#### REPORTS OF STANDING COMMITTEES

Committee on Public Policy and Legislation Oral reports to house of delegates by Drs. Baughman and Duncan and Mr. Karl Goldsmith. (Letter from Goldsmith).

"The legislature will adjourn this afternoon, and the following is a brief report on its action so far as it affects your association or the members thereof:

Senate Bill 62, which provides that the state board of health shall license hospitals and have control thereof so far as sanitary and other like measures are concerned, has passed both houses.

Senate Bill 108-Blue Cross-has passed both houses although considerably amended. I believe it is still workable and if there is anything which hampers such an organization, it can be corrected at the next session of the legislature.

House Bill 10, which provided that the boards of county commissioners should appoint the county superintendents of health, died in committee.

House Bill 21, which, as amended, provides that the trustees of a county hospital shall not discriminate between licensed doctors, passed both houses and has been signed by the governor.

Senate Bill 160, the prepayment medical plan, passed the senate and died in the house committee on public health of which Dr. Mills is chairman. Dr. Mills was unalterably opposed to this measure, and while the bill could have probably been pried out of the committee, there was so much opposition, particularly that of Dr. Mills, that it was thought best to leave the bill where it was."

Sincerely yours,

KARL GOLDSMITH.

#### RESOLUTION

Concerning referendum on hospital licensing act known as Senate Bill 62

Whereas at the last session of the South Dakota state legislature there was passed a certain hospital licensing act known as senate Bill 62, and

Whereas the South Dakota state medical association believes that said act is for the general good of the people of the state of South Dakota, and

Whereas there have now been legally filed petitions to refer said senate Bill 62 to the people of South Dakota at the next general election.

Now therefore be it resolved that the South Dakota state medical association go on record as being opposed to the referendum on said senate Bill 62 and in favor of having this bill become law as originally passed by the 1945 legislature.

> D. S. BAUGHMAN, M.D., Chairman. Wm. Duncan, M.D.

#### Committee on Medical Defense

I wish to submit the following report of the medical defense committee, namely, that the report tabled five or six years ago be given reconsideration.

Respectfully yours,

T. F. Riggs, M.D., Chairman. G. W. Mills, M.D.

C. J. McDonald, M.D.

### Committee on Medical Education and Hospitals

I wish to submit the following report of the committee on medical education and hospitals:

It is the opinion of the members of the committee that the idea of the new four year school at Vermillion should be strongly supported. The preceptor plan can be carried out even farther than originally proposed, especially if the 9-9-9 months present medical education plan be eliminated and returned to the old four-year course. Many of these medical students can work in hospitals throughout the state during the interval between their first and second, second and third, and third and fourth years, gaining considerable experience which is valuable during their final year.

We suggest that Dr. J. C. Ohlmacher and President Weeks formulate a plan in writing in regard to a curriculum.

Respectfully yours.

T. F. Riggs, M.D., Chairman. E. M. STANSBURY, M.D. GEOFFREY COTTAM, M.D.

#### Committee on Medical Economics

As the committee on medical economics, we feel that the members of this society have two major problems to consider this year, one on the national level, the other on our own state level.

On the national level, the Wagner-Murray-Dingell Bill (S. 1050 of 1945) is the culmination of forces, both in and out of the government, which have gradually grown in strength during the last decade. As you know, it provides a system of compulsory sickness insurance, grants and loans for the con-struction of health facilities, grants to states for public health services, also a comprehensive public assistance program, and a national system of public employment offices.

This bill would place tremendous authority in the hands of the surgeon general, and would revolutionize medical care in the United States. Among its main proponents are the American Federation of Labor and the CIO, both tremendously powerful organizations. Unless ways and means can be devised to stop it, we physicians may very well find ourselevs carrying a union card and taking orders directly from Philip Murray or John L. Lewis. There is grave need for thought and concerted action on the part of our profession if medical chaos is to be averted.

On the state level, we were confronted at the last state legislature with a strong cultist lobby that had money to spend and that knew how to use it. Our bill to establish an enabling act never got out of committee. The bill to permit osteopaths and chiropractors to practice in county hospitals passed in spite of our best efforts. At present there is a referendum pending by the chiropractors association to take the licensing of hospitals out from under the supervision of the state board of health.

We physicians have very little time and very few of us much political influence to give to the protection of the interests of our profession. We do have a good sized membership, most of whom make a very sizable income. Is it not reasonable that we should at least use our financial resources to protect our

Our committee recommends that an ample legislative fund be raised, either by increasing our annual dues or by special assessment, to take care of our interests at future sessions of the legislature. It seems to us that we have been pushed around long enough.

> C. E. Robbins, M.D., Chairman. D. A. Gregory, M.D. W. A. DAWLEY, M.D.

September, 1945 335

#### Committee on Public Health A. Trioto, M.D., General Chairman

Sub-committee on Cancer:

Although this committee has not functioned as a unit, each of the members, namely: Dr. R. E. Jernstrom, Dr. Gilbert Cortam and myself, have worked individually to the best of our shilty in the field during the past year and I include reports from the other members of this group. Dr. Jernstrom, in a recent letter to me, stated that he would like to recommend that steps be taken for the establishment of tumor clinics as soon as conditions warranted. Dr. Jernstrom stated that one was to be established at Rapid City as soon as a pathologist could be obtained. He further stated that he felt cancer was closely related to public health and that some help might be obtained from the state board of health in organizing these clinics.

As superintendent of the state board of health, Dr. Cottam

sends me the following report:

"During the past year the activities of the state board of health in cancer control have been limited to educational efforts and the provision of a small fund of money from the United States public health service for the examinations of sections by a pathologist in certain selected cases. Our publicity has been carried on through special issues of our monthly bulletin, 'South Dakota Public Health Highlights,' which goes to approximately 2,400 individuals and organizations, with special articles on cancer control at varying intervals during the year, and answering numerous letters of inquiry in regard to cancer. When funds are available the state board of health will be glad to encourage and cooperate with the medical profession in the establishment of a cancer center for the diagnosis and treatment of cancer patients, but such an institution, to be effective, would require the expenditure of a considerable amount of money to build, equip and maintain, together with the securing of suitable competent personnel and such a program would be impracticable during war times unless extensive private funds were donated for the purpose.

It is entirely possible that with the authorization of a fouryear medical school such a canter center, reasonably soon, might be set up as part of the teaching program and thus be capable of maintenance at a high professional level without encroaching on the domain of the private practitioner and also be handled more economically than if it existed as an entirely

separate project.'

. . .

Through efforts of our president, Dr. Baughman, and Mrs. Peterson, district commander of the American Cancer Society, of Billings, Mont, and Dr. Larson, Bismarck, No. Dak, we have begun the organization of the state of South Dakota in the campaign for the American Cancer Society. Mrs. Harry T. Dory of Watertown has been appointed the South Dakota commander and I give her report as follows:

"I wish to outline the progress made by the South Dakota division of the American Cancer Society since I was appointed

state commander in February of this year.

Approximately 50,000 pieces of literature have been distribused from my dest, giving the state fair coverage. A member from each of two hundred and fifty different organizations has been appointed to work with the society in the distribution of material to their individual organizations.

Three counties, Lawrence, Fall River and Meade, have been organized with county commanders and captains appointed in

the various towns and counties.

In 1945 the campaign for funds is just now drawing to a close, and while the returns are not complete we have received around \$3,600.

For next year's work, I plan the organization of as many counties as possible; the continuation of the educational program to the lairy; the institution of the school program wheever practical and possible; and the campaign for funds for the work of 1946-47."

This work was done in the last six months and I feel that a great deal of ground work has been accomplished and the outlook for the organization appears to be quite bright. Duting the nest year it is proposed that each county or district in this

state be organized and an educational program instituted. The recent campaign in this state for funds for the society was led by A. H. Seasuer of Brookings and although our goal was not met, it is felt by those of us who have aided in this effort that by and large it was quite successful. Mr. Eric Johnson will be campaign manager of the United States for the next year and it is our desire that Mr. Sezauer continue in his position also. Admiral Charles S. Stevenson, retired, U. S. Navy, was appointed by the national executive committee of the American Canter Society to succeed Dr. C. C. Little as managing director.

To adequately care for this unfortunate group of patients we need the full cooperation of each physician in this state, the state board of health and the American Cancer Society.

O. S. RANDALL, M.D., Chairmon. R. E. JERNSTROM, M.D. GILBERT COTTAM, M.D.

Sub-Committee on Tuberculosis:

1. First we feel that an early diagnosis campaign is most important in the control of tuberculosis. Only by the early detection of tuberculosis, with the solation of active cases, can the spread of the disease be prevented. It is much more important to detect cases when they are in the incipient stages and when they have a reasonable chance of cure without serious later impairment of respiratory function, than it is to use extensive means to control the far advanced case.

(a) There are several methods that are of much value in the detection of the early cases. First the examination of every contact of an active case must be religiously carried out. If a thorough enough search is performed throughout the associates and immediate family of the active case it is very probable that other active cases will be detected that have been infected from the original source or from the present patient. A half-hearted search for such sources of infection will be of little value and will only give the relatives a false sense of security. It is our responsibility, as physicians, to follow up this as a duty to the

community in which we live.

(b) Mass surery will be started within the near future. Soon a portable truck unit will be ordered and it will probably be in operation by the last of the year. Other such units should be purchased at later dates, depending on the proportion of the special propulation of the state that it is possible to examine with this one unit. It is the plan, at the present time, that this unit be operated out of the state board of health and that an xray rechnician, a clerk and two nurses accompany this unit. It will visit various towns, planing as many as possible in that town, on 70 mm. film. These films will be returned to the sanatorium for examination. Any suspicious film will be reported to the family physician for follow-up studies, including 14x17 film and clinical examination. The family physician's name and address will be secured for each patient and the report will go only to him. No report will go to the patient. At this time it is planned that the operation of this unit will be by funds supplied to the state board of health from the federal government. Money that is used for matching purposes.

2. There are a number of patients with active tuberculosis that refuse to observe any type of isolation, either in the home or in the sanatorium. In a number of instances patients with active tuberculosis have remained at home or have returned home against advice, to live with their families. In at least two instances several children in the home have acquired active tuberculosis and, in one of these instances two of the children were in the sanatorium. We feel that it is regrettable that innocent members of society have not a right to demand that they be protected from individuals who have no social responsibility. When the war is over it is planned to rebuild one of the units at the sanatorium so that it will be fire-proof. Several rooms should be constructed as detention rooms where uncooperative patients may be detained if they are a menace to society and refuse to remain under voluntary quarantine; either in the home or in a sanatorium approved by the board of health. At the present time the attorney general feels that patients may be quarantined at the sanatorium, but it is impossible to enforce such quarantine without a room where they may be locked up. A fire-proof room would be necessary for such a procedure. We wish to go on record as favoring the passage of legislation so that it would be possible for the county authorities to transport patients to the sanatorium and enforce their remaining here under quarantine. In only a few instances would this be necessary, but such a procedure should be set up so that it may be used in an emergency for uncooperative cases.

3. When the present emergency makes help more available, it is planned to ask for an increase in the assistance from the federal government so that the services of a tuberculosis consultant may be secured. This consultant will be under the direction of the sanatorium. He will work out of that institution. It will be his purpose to hold clinics in various parts of the state, preferably in a hospital. Any licensed physician may bring patients for consultation. It is particularly desirable that ex-patients of the sanatorium visit this clinic for check-ups.

W. E. Morse, M.D., Chairman. W. L. Meyer, M.D.

Sub-Committee on Mental Hygiene and Child Welfare (No report)

Sub-Committee on Syphilis Control Program, U.S.P.H. Service:

The principal changes I have to report since the last meeting are that we have discontinued issuing drugs for the treatment of any form of tertiary syphilis, believing that, being non-communicable, the treatment of syphilis in this stage is wholly within the province of the private practitioner. We issue penicillin to treatment centers within the state only for early dark field proven cases of syphilis or if the preliminary sore is healed in early secondary and early latent cases, since the consensus of experience thus far does not seem to warrant the use of peni-cillin in later stages. We issue arsenicals and heavy metals solely for the treatment of syphilis up to the end of the secondary stage but not for tertiary syphilis. The incidence of syphilis in South Dakota, according to our records, is very low.

GILBERT COTTAM, M.D., Chairman

ANTON HYDEN, M.D.

#### . Committee on Necrology

"Because I live, ye shall live also." These words spoken by the Great Physician nearly two thousand years ago, bring a comforting thought to members of the medical profession as we assemble here today. Many familiar faces whose presence meant so much to us in the past will be greatly missed at this time and in the future. As we reflect upon the memory of those who gave from the richness of life, a full measure of devoted service to the promotion of th high principles of the practice of medicine, let us strive with faithfulness to carry on their good work. During the past year the following physicians have answered the final summons:

HUGO NEUKAMP, Hosmer, age 68. A graduate of the University of Bonn, Germany, 1898. Killed in automobile accident, June 1, 1944.

JULIAN D. MUELLER, Flandreau, age 39. A graduate of Creighton university, Omaha, Nebr., 1931. A member of the staff of the Flandreau municipal hospital and coroner of Mood county. Died of injuries received when crushed by a truck.

JAMES B. VAUGHAN, Castlewood, age 75. A graduate of Washington university, St. Louis, Mo., 1894. Located in Castlewood in 1895 where he remained until the time of his death, July 16, 1944. Dr. Vaughan was a past president of the South Dakota state medical association, and at the time of his death was a member of the state board of health. A past president of the South Dakota health officers association, Dr. Vaughan was active in state and national health affairs. He is reported to have served as county health officer for a longer period of years than any physician in South Dakota. Aside from his activities in medical affairs he was deeply interested in civic and fraternal activities, having served as grand patron of the order of Eastern Star, and at the time of his death was president of the Community State bank of Castlewood.

GEORGE SHELDON ADAMS, Yankton, age 67. Graduate of Rush medical college, 1901. In 1936 the University of South Dakota conferred upon him the degree of LLD. Shortly after graduating from medical college he joined the staff of the Yankton state hospital as assistant physician. In March, 1904, he was appointed assistant superintendent and in 1920 became superintendent, which position he held until the time of his death, July, 1944. Thus during a period of over 43

years he devoted himself to the public service of suffering humanity, forsaking a more remunerative private practice. It was his lot to treat those less fortunate than others and to restore to the human body its most precious gift, the mind. In this field of endeavor his work was highly recognized. During his term as superintendent of the Yankton state hospital, he exerted every effort to keep abreast of the latest methods of treatment of the insane, adopting each new method as it was approved. To carry out these later methods of therapy, he sent members of the staff to training centers to become better fitted to administer the treatments. In his passing, South Dakota has lost a great physician and psychiatrist whose work has been outstanding in maintaining the high standards of the Yankton institution. Dr. Adams was past president of the South Dakota state medical association, past president of the Yankton district medical society, a member of the Sioux Valley medical society and a fellow in the American medical association. He was also a fellow and life member of the American psychiatric association and a member of the South Dakota commission for the control of feeble-minded. Dr. Adams passed away July 28,

1944, at Yankton, South Dakota. HORACE W. SHERWOOD, Doland, age 78. A graduate of Ann Arbor, Michigan, 1896, Dr. Sherwood came to South Dakota in 1902 and located at Doland, where he continued his practice until a few years ago. A member of the South Dakota state medical association and a fellow in the American medical association, Dr. Sherwood took an active part in medical matters, having served his district as councilor for many years. He was also active in civic, church and fraternal organizations, having served as president of the school board and Sunday school superintendent for a number of years. He had the proud distinction of having two of his sons follow in his profession, namely Dr. C. E. Sherwood and Dr. J. Vincent Sherwood. Dr. Sherwood died at the home of his son, Dr. C. E. Sherwood, in Madison, August 15, 1944.

SAMUEL WALLIS, Armour, age 75. A graduate of Boston college of physicians and surgeons, 1900. Dr. Wallis came to South Dakota in 1900 and located at Miller, where he practiced for eighteen years, later moving to Armour, where he died August 30, 1944.

B. F. MARKIN, Columbia, age 65. Graduate of Columbian medical college, Kansas City, Mo., in 1900. Dr. Markin came to South Dakota in 1901 and located at Columbia, where he practiced until his death, October 7, 1944.

FRANK V. WILLHITE, Redfield, age 66. Graduate of the University of Illinois in 1905. Dr. Willhite came to South Dakota in 1909. He served as a member of the medical staff at the Yankton state hospital from 1909 until 1920 and became assistant superintendent from 1920 to 1923. He was appointed superintendent of the school for the feeble-minded at Redfield in 1923, which position he held until June, 1944 when, due to failing health, he was obliged to resign. Dr. Willhite was nationally known in social work and his constructive program, adopted at Redfield, will prove to be of value to his successors in the years to come. Dr. Willhite died at his home in Redfield October 20, 1944.

WILLIAM P. ROBERTS, Sioux Falls, age 75. A graduate of the University of Illinois, 1894, Dr. Roberts came to South Dakota in 1906 and practiced in Sioux Falls until 1942. He died January 12, 1944, following a long illness.

WILLIAM E. DICKENSON, Canistota, age 67. Graduate of the University of Illinois in 1904. Dr. Dickinson came to Canistota the same year where he continued his practice until the time of his death, except for five years spent on the staff of the Nebraska state hospital and the Colorado state hospital and also time spent in postgraduate work. Dr. Dickinson was a veteran of the Spanish-American war. He died January 28, 1945.

EARL M. YOUNG, Mitchell, age 58. Graduate of Rush Medical college, 1913. Practiced at Plankinton, S. D., from 1914 to 1918. Dr. Young came to Mitchell in 1918 where he continued to practice until the time of his death, March 21, 1945. He was a member of the Mitchell district medical society and the American Medical Association. He was on the staff of both St. Joseph's hospital and the Methodist hospital and was also city health officer of Mitchell for many years.

D. W. CRAIG, Sioux Falls, age 75. Graduate of Northwestern medical college, Chicago, 1896. Practiced four years in Chicago. Dr. Craig came to Sioux Falls in 1904, where he continued to practice until recent years. Active in civic affairs and fraternal organizations, he was an honorary member of the Seventh District medical society, A.M.A., and a veteran of World War 1. Dr. Craig died May 28, 1945.

WM. GUILLAUME, Aberdeen, age 71. He was born July 10, 1873, and died May 4, 1945. Dr. Guillaume practiced in

Stratford, S. D., until 1943.

E. Joyce, M.D., Chairman. J. A. Hohf, M.D. MAGNI DAVIDSON, M.D.

#### Committee on Medical Benevolence

We believe in brevity in committee reports, relating only to accomplishments and aims. Little is required of this committee but the nature of this fund is most important to the society and, we think, should be reiterated every two or three years.

Following several years of investigation and work by the medical auxiliary, they saw the need of a fund from which needy physicians and their families might be helped, raised a small amount of money and in 1940 interested the state medical association in taking it over jointly.

Drs. Baughman, W. E. Donahoe and Shirley were appointed

with auxiliary members, Mesdames Westaby, Nessa and Hart, to formulate plans for the conduct of the fund. By-laws were

formulated and we call attention to paragraph B-1:

The State Medical benevolent committee shall elect its own chairman, secretary and treasurer. This committee shall have in its charge all relief funds of both organizations, legacies, donations and in whatsoever way they may desire and also be responsible for its complete administration, (keeping, investing, expending). It shall be incumbent upon this committee to formulate a set of rules governing and quartering the permanency, safety and confidential aspects of the conduct of this committee and fund. Further, this committee shall make a complete report annually to the executive board of the South Dakota state medical association and the women's auxiliary to the South Dakota state medical association.

Another important ruling is that no benefits be paid until the fund has reached at least \$5,000. This fund shall be administered jointly by the secretaries and three members of the association and the auxiliary, appointed by their respective presi-

dents for three (3) year terms.

To date: Invested in series F bonds \_\_\_\_\_\$1,239.50

To mature in 1955 at \$1,675.

Cash on deposit in Madison Security Nat. Bk ..... 226 87 Aside from fifty cents per member yearly from the state medical association, small sums have been given by Madison, Pierre and Watertown auxiliaries, and \$20.00 as Dr. and Mrs. H. W. Sherwood memorial.

This committee feels this fund is important and recommends and urges the auxiliary and medical association to keep it

active and enlarge it as much as possible.

W. E. DONAHOE, M.D., Chairman. W. H. SAXTON, M.D. C. E. SHERWOOD, M.D.

#### SPECIAL COMMITTEES

#### Radio Broadcasts

Radio broadcasts, which were discontinued two years ago on account of lack of material, have been resumed. Material is now obtainable in the way of transcripts from the AM.A. It should be remembered by the state association and the district societies that radio time is so allotted and can be used at any time for special medical broadcasts, such as cancer and tuberc-culosis campaigns, etc. In Rapid City the broadcasts have been made weekly since February. In Sioux Falls, due to a misunderstanding, they have not as yet been started but shall be in the very near future.

Dr. Jernstrom, the committee member in Rapid City, reports a coolness on the part of the station because it is a good-will or non-profit broadcast. It will be recalled that it was for this reason that the broadcast was withdrawn from WNAX where the program, under Dr. Hohf, was first instituted.

In Sioux Falls, just the opposite is true and, as previously reported, Station Manager Henkens has always shown a great willingness to have the program and has at all times been most cooperative about the time, material, etc. It seems strange that the other stations give their reasons as the chain hook-up, but here KELO is an affiliate of the NBC who urge and regard their medical broadcasts as the best of their good-will programs. It is most likely the attitude of the local management of any station, and of course we shall have no monies for such and it would behoove us to get along the best we can. The medical broadcasts are most worthwhile and will continue to be, so your committee recommends their continuance.

While your committee members give verbal and written let-ters to the stations, we ask that letters of appreciation and thanks be sent from the state association by the secretary and that they be a bit expressive and flowery; you know, in lieu

of money.

W. E. Donahoe, M.D., Chairman. S. M. Hohr, M.D. R. E. JERNSTROM, M.D.

Editorial Committee

The editorial committee has no essential report to make. The JOURNAL-LANCET continues as our official publication and, as far as I know, publishes all of our scientific program papers which are submitted to it. All members of this committee were contacted for any information or recommendation to submit in

this report, but no criticism or advice was received.
N. J. Nessa, N.D., Chairman.
J. C. Shankery, M.D.
J. C. OHLMACHER, M.D.
C. E. SHERWOOD, M.D GILBERT COTTAM, M.D. D. S. BAUGHMAN, M.D. WM. DUNCAN, M.D. R. G. MAYER, M.D.

Committee on Medical Licensure

Medical licensure is the legal device used by the state to regulate the sale of medical service to the public. Theoretically and idealistically, this is done to insure that only a high quality of medical service may be sold. This is done by determining that the ability, character and integrity of the individual conform to certain standards before he is permitted to sell medical

A perversion of this idea would have special legislation passed providing for the sale of medical service by an artificial person, or corporation, that has neither ability, character nor integrity.

A physician may move into a community that under average conditions would require only about enough medical service to support one man By doing this he keeps out any other physician and in a sense creates a monopoly for himself in the community. This in turn places a moral responsibility, at least, on him to take care of any and all of the medical needs of that community.

While on the other hand, if a corporation is permitted to sell medical service and collect in advance, they may go into such a community and sell limited services, as major surgery and obstetrics, at reduced prices and assume no responsibility for the other medical services that must necessarily be rendered by someone else. This leaves the possible income for any physician who might consider locating in that community so small that no physician will undertake to live there. Hence, what may look to be an advantage to the community, in having lower charges for some limited services, proves to be a disadvantage, by robbing them of any chance to have someone who will take care of the rest of the needs, including often emergencies that mean loss of life if not taken care of.

Another disadvantage to the small community is that the atient does not have a physician at hand to render the service but must go to the place where the service is provided by the corporation. This will tend to concentrate the work and the physicians in the larger centers.

South Dakota is primarily a state of rural communities, which consist of small towns and surrounding farms. Anything that robs these communities of their medical service or takes it farther away from them is detrimental to the public welfare

A glance at a map prepared by our state health department, showing the location of the physicians in the state, reveals that

about 40 per cent of the physicians of the state are found in the eight largest cities, which cities contain only about 20 per cent of the state's population. Or putting it another way, in the eight largest cities of the state there is one doctor for 804 people, while in the remainder of the state there is one doctor to 2,542 people. Thus, we see that in South Dakota, we have not only a shortage of doctors but we have a very poor distribution of doctors.

Analyzing this distribution further as to age groups, we find that only 33 per cent of the doctors in the eight largest cities are over 65 years of age, while 40 per cent of the doctors outside the largest cities are over 65 years of age. Thus, we see that the burden of caring for the larger per capita load is falling on the group that is less physically fit to carry it.

This tends to force more and more of the people of the rural areas to go to the cities for care of the major illnesses.

It is with the hope that this trend could be stopped and a supply of physicians provided who might be induced to locate in the smaller towns, that the legislature provided for expansion of our medical school to a four year course. Another factor that will influence doctors to return to the smaller towns is the providing of small hospitals, properly equipped, in those towns.

A realization of this fact is shown by the number of small hospitals now publicly owned and by the number of county hospitals being proposed in the state.

Any legislation that will tend to hinder the development of more of such hospitals or might make it more difficult for doctors to return to the smaller communities will be carefully considered before passage by the legislature, I am sure.

We recommend thorough discussion by the society as a whole, any changes to be proposed in our methods of selling medical services to the end that any method adopted will best serve our state as a whole.

> G. W. MILLS, M.D., Chairman. F. H. Cooley, M.D. F. G. Abts, M.D.

Advisory Women's Auxiliary No report.

> Allied Group No report.

#### Committee on Military Affairs

The military affairs committee reports the addition of three more physicians to the list of those now serving in the armed forces. They are as follows: J. E. Studenberg, Gregory; R. A. Buchanan, Huron, and F. J. Gilbert, Belle Fourche.

During the past year, two physicians have been released from the armed forces and returned to practice in South Dakota: J. F. Malloy of Yankton and W. T. Ferris of Chamberlain. The latter, however, was forced to discontinue practice again because of ill health.

According to information received from the procurement and assignment service there may be a few more physicians released during the coming year and first consideration for release will probably be given to general practitioners who intend to return to their former locations provided that it can be shown that they are greatly needed there.

WM. DUNCAN, M.D., Chairman. H. T. KENNEY, M.D. D. A. GREGORY, M.D.

#### Committee on Radiology

The radiological committee has nothing to offer—only to sympathize with the shortage in the film situation which has developed. Commercial x-ray, lend lease and military demands have reduced the 1945 allotment to 69 per cent, as compared to 1944. Meanwhile, we all will have to get along the best we know how until the film manufacturers can catch up.

N. J. NESSA, M.D., Chairman. J. R. Fuchlow, M.D. J. H. Lloyd, M.D.

#### Committee on Medical Service and Public Relations

No duties came to our attention during the year and therefore we have no report to make.

N. J. Nessa, M.D., Chairman. T. F. Riggs, M.D. G. W. Mills, M.D.

#### Committee on Prepayment and Insurance Plans

The council of the South Dakota state medical association, at the annual meeting in May, 1944, decided that the subject of prepaid medical care should receive investigation as to its application in this state. For this purpose the president, Dr. Baughman, appointed the following as a committee on prepayment and insurance plans: H. Russell Brown, chairman, R. E. Jernstrom, R. G. Mayer, C. E. Robbins and C. E. Sherwood. During the year correspondence was carried on among the members of the committee and on two occasions the committee met for consideration of the subject. On Dec. 10, 1944, three members of the committee attended the North Central medical conference at St. Paul, Minnesota, and felt well repaid for the effort and expense of the trip by the information acquired. South Dakota was well represented at that meeting, there being ten of us present, including Dr. Baughman, your president. At this meeting medical men from seven states discussed the economic problems facing medicine. Problems peculiar to each state and the action being taken toward their solution were emphasized.

the action being taken toward their solution were emphasized. On the night prior to the council meeting of December 17, 1944, your committee met at the Marvin Hughitt hotel in Huron, South Dakota. Also present at this meeting were Karl Goldsmith and Dr. Baughman. The entire subject was discussed at great length and it was the decision of the committee that our first step should be the passage of an enabling act at the then approaching 1945 session of the state legislature, permitting the organization of a corporation to make available medical insurance to the people of South Dakota.

A proposed enabling act, ably prepared by Karl Goldsmith, was carefully studied and then presented to the council at its meeting the following day with the recommendation that it be presented to the state legislature. This was so ordered by the council. A copy of the proposed act is attached to this report.

This enabling act was introduced in the senate where it received favorable consideration. In the house of representatives it died in committee and thus was not enacted into law. Karl Goldsmith will give you the details of the troubles it encountered.

As a result of its consideration of this subject your committee feels that certain points should be emphasized in this report. We all are aware that the people of this country have indicated in public opinion surveys and by other means that they want some method of prepaying medical and hospital expenses, particularly for catastrophic illness or injury. We can be sure also that what the people want they will get in one form or another; that is, by the private enterprise method or by politically influenced, government controlled medicine. At present it is highly probable that we, in medicine, are already too late in promoting and developing plans along this line.

We, in South Dakota, have lagged behind our neighboring states in this general program. As an example of this, consider the development of the Blue Cross hospital insurance. South Dakota is the only state for several tiers in all directions without a functioning Blue Cross plan. At its last session the legislature passed an act enabling the Blue Cross plan to function but the act was so mutilated that it is of little practical value. It is the consensus that no medical prepayment plan is practical without a functioning Blue Cross plan. This applies not only to an insurance corporation that we, as medical men, might set up locally but also to plans available to us by outside underwriters. Such a plan as the latter is available but it cannot be utilized without the cooperation of the Blue Cross hospital organization. Therefore, it seems essential that medical men take an interest in and assist the hospitals in procuring necessary legislation.

The committee feels that it should question the society and the medical men of the state as to what they do or do not want. This question is asked because of the decided lack of interest and support in our legislative program during the last session at Pierre. It seems that most of us were too deeply buried in

cur work to worry about our present welfare, much less our future position. As an example of this, house Bill No. 21 was overwhelmingly passed by the other healing professions without an effective opposition by medicine. It appears to this committee that all of us take too little interest in the passage of legislation which is adverse to us and certainly this was very manifest at the last session of the legislature. We cannot depend on the employment of a lobbyist and expect that he alone can accomplish our goals for us.

From experiences in the past year it appears that it would be well for the rank and file of physicians to become better informed upon medical insurance plans. The current medical literature contains many articles on the subject and the American Medical Association can furnish several booklets of value. Until we, as medical men, educate ourselves on this subject and on what is being done in other states, we cannot expect to convince the laity or the legislators of the desirability and the need for adequate legislation to permit the development of this type of insurance.

At the present time, as we all know, conditions in South Dakota are good. People in general have good incomes and are able to finance medical and hospital expense without hardship. We should not fall into the error of assuming because of this Now, during an era of prospectity, is the time to start such a plan, so that when conditions change, as they will, the people will have that protection.

Your committee advises that every help be offered the hospitals of the state to assist them in developing an adequate Blue Cross hospital plan in South Dakota, believing that this is a prerequisite to the development of any plan for prepaid medical insurance. We advise also a continuation and intensification of effort to develop a plan of prepaid medical insurance and the passage of any legislation necessary thereto.

H. RUSSELL BROWN, M.D., Chairman,

C. R. Robbins, M.D.
R. E. JERNSTROM, M.D.
R. G. MAYER, M.D.
C. E. SHERWOOD, M.D.

Advisory to Departments of State Board of Health Ophthalmology and Otolaryngology

No report.

Orthopedics

No report. Social Security

No report. Maternal and Child Welfare

True to form, this committee has not met nor had any matters referred to it but contrary to form, shall not make the customary lengthy, hypothetical report but merely refer any interested person to the short report of last year.

W. E. DONAHOE, M.D., Chairman.

J. E. Studenberg, M.D. E. T. Lietzke, M.D.

Committee on E.M.I C.

In regard to the EM.I.C. I wish to briefly state that as a wartime measure, it has been of great value. I understand that as soon as the emergency is over, the E.M.I.C. program will be automatically discontinued,

R. E. JERNSTROM, M.D., Chairman. Wm. Duncan, M.D. W. E. Donahoe, M.D.

#### SOUTH DAKOTA STATE MEDICAL ASSOCIATION ROSTER -- 1945

#### MEMBERSHIP BY DISTRICTS ABERDEEN DISTRICT No. 1

E. A. Rudolph Aberdeen
J. D. Alway Aberdeen
x Aldrich, H. H. De Smet Alway, J. D. Aberdeen *Bates, W. A. Aberdeen *Bloemendall, G. J. Ipswich Brenckel, J. F. Mellette Brinkman, W. C. Veblen Bruner, J. E. Aberdeen Bunker, Paul Aberdeen Calene, J. L. Aberdeen
S. J. Walters Watertown
A, P. Scheib Watertown
*Adams, M. E. Clark Bartton, H. J. Watertown Bates, J. S. Lake Preston
PRESIDENT

SECRETARY C. M. Kershner \_\_\_\_\_ Brookings

M. Drobinsky .....

Baugman, D. S. ..... Davidson, Magni ....

Drobinsky, M. \_\_\_\_ Grove, F. M. \_\_\_\_

.... Estelline

Madison Brookings

\_ Estelline Arlington

PRECIDENT

Chichester, J. G Cooley, F. H Damm, W. P Drissen, E. M	Aberdeen Redfield Britton
Dunn, J. E Eckrich, J. A * Elward, L. R	Aberdeen Doland
Farrell, W. D	Aberdeen Britton
King, H. I.  King, Owen  *Kruzich, S. J.	Aberdeen Aberdeen
Marvin, Thos. R WATERTOWN DISTI	Faulkton

Brown, H. R	
Christenson, A. H	
Cooper, Geo	Watertown
Hammond, M. J.	Watertown
Hickman, G. L	Bryant
Jorgenson, M. C.	Watertown
Kenney, H. T	Watertown
Kilgaard, R. M.	Watertown
Larsen, M. W	Watertown
MADICON DISTRICT	No. 3

#### MADISON DISTRICT No. 3

Gulbrandsen, G. H	
Hofer, E. A	Howard
* Hopkins, M. K	Arlington
Jordan, L. E	Chester
Kershner, C. M.	Brookings
· Miller, H. A	Brookings
Muggly, J. A.	_ Madison
Peeke, A. P	Volga

Mayer, R. G. McBroom, D. E. *McCarthy, Paul V. Murdy, B C. Murdy, Robert Pittenger, E. A. Ranney, T. P. Rodine, J. C. Rudolph, E. A. Scallin, Paul R.	Redfield Aberdeen Aberdeen Aberdeen Aberdeen Aberdeen Aberdeen Aberdeen Aberdeen
	Redfield  Aberdeen  Aberdeen  Redfield  Aberdeen

Magee, W. G	Watertown
Maxwell, R. T.	Clear Lake
McIntyre, P. S.	
Randall, O. S	Watertown
Richards, Geo. H	Watertown
Rousseau, M. C	
Scheib, A. P.	
Walters, S. J	
Willen, Abner	Clark

Sherwood, C E	Madison
Tank, M. C	Brookings
Torwick, E. E	Volga
Watson, E. S	
Westaby, J. R	Madison
Whitson, G. E	Madison
Willoughby, F. C.	Howard
Boyd, F. E, Jr	Flandreau

	PIERRE DISTRICT No. 4	•
PRESIDENT	Cowan, J. T Pierre	Northrup, F. A Pierre
J. T. Cowan Pierre	Creamer, F. H. Dupree	Riggs, T. F. Pierre
SECRETARY	Embree, V. W Onida	Robbins, C. E. Pierre
M. M. Morrissey Pierre	* Hart, B. M Los Angeles Kimble, O. A Murdo	*Salladay, I. R Pierre Schultz, S Phillip
*Burgess, R. E Gettysburg	Martin, H. B Harrold	Triolo, A. Pierre
Carney, James G. Pierre	Morrissey, M. M Pierre	*Van Heuvelan, G. J. Pierre
Collins, E. H Gettysburg	Murphy, J. C Murdo	Wilkinson, E. A Highmore
,	HURON DISTRICT No. 5	
PRESIDENT	Burman, G. E Carthage	Saxton, W. H Huron
	Hagin, J. C Miller	Saylor, H. L. Huron
SECRETARY	Hendricks, Esten St. Paul	Shirley, J. C Huron
B. T. Lenz Huron	Jacoby, Hans Huron	Tschetter, J. S. Huron
*Adams, H. P. Huron	Lenz; B. T. Huron	Tschetter, Joseph Huron
*Buchanan, R. A Huron	Pangburn, M. W	Tschetter, P. S Huron
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PRESIDENT	Bobb, E. C Mitchell Bollinger, W. F Parkston	*Keene, F. FWessington Springs
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Bobb, C. S Mitchell	Jones, F. D Chamberlain	Weber, R. A. Mitchell
Dobb, C. O	SIOUX FALLS DISTRICT No. 7	
Po Pote No.	Erickson, E. G Sioux Falls	* Mullen, R. W Sioux Falls
J. A. Kittelson Sioux Falls	Erickson, O. C Sioux Falls	Nelson, J. A. Sioux Falls
SECRETARY	Fisk, R. R Flandreau	Nessa, N. J Sioux Falls
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Dulaney, C. H. Canton	McDonald, C. J Sioux Falls	Zimmerman, Goldie Sioux Falls
<i>Duranoy</i> , <i>G.</i> 11	YANKTON DISTRICT No. 8	
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SECRETARY	Greenfield, J. C Avon	Lietzke, E. T. Beresford
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SECRETARY	x Overton, R. V. Winner	
x R. V. Overton Winner		
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	NORTHWEST DISTRICT No. 11	** ** 1 **
PRESIDENT	*Catey, Capt. Robt Mobridge	Lima, Frank Hoven
W. A. George Selby	Christie, Roy E. Eureka	Lowe, C E Mobridge
	*Duncan, C. E. Pollock	*Sawyer, Maj. J. G Mobridge
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W. T. Judge Milbank	Flett, Chas Milbank	
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Bobb, B. A Mitchell
Bobb, C. S Mitchell
Bobb, E. C. Mitchell
Bollinger, W. F Parkston

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* Bowers, Capt. F. C	
Boyd, F. E., Jr	Flandreau
Brenckie, J. F	Mellette
Brinkman, W. C.	Vahlan
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Brookman, L. J	vermittion
Brauer, Harry H. Brown, H. R.	Sisseton
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Bruner, J. E.	Aherdaan
*Bushanan D A	H
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Clark, J. C.	
Clark, O. H.	Newell
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Collins, E. H. Conner, E. I. Cooley, F. H. *Cooper, Geo. Cottam, Gilbert Cottam, G. I. W. Cowan, J. T. *Craig, Allen *Craig, Allen *Craner, L. Craner, L. Craner, H. Craner, F. H. *Culver, C. *Cunningham, R. S. *Uwiller, Capt. *Lanum, W. P. *Davidson, H. E. Davidson, Magni Davis, J. H. Dawley, W. A. *Day, Capt. Chas. *Delhi, H. M.	Alcester Aberdeen Watertown Pierre Sioux Falls Sioux Falls Sioux Falls Sioux Falls L'Oroya, Peru Dupree Stoux Falls M. Rapid City Redfield Lead Brookings Belle Fourche Rapid City Rapid City Rapid City Rapid City Rapid City Rapid City
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Delaney, W A.	Mitchell
DeVall, F. C DeVries, Albert	Plane
*Dick, Fred	Vermillion
Dick, L. C	Spencer
Donahoe, W. E	Sioux Falls

<sup>\*</sup> Honorary or Affiliate x Deceased

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*Duimstra, Fred	Sioux Falls
Dulaney C H	Canton
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★Duncan, C. E	Pollock
Dungan W/m	Waharan
Duncan, win	Webster
Dunn, I. E	Groton
E-1	A L J
Eckrich, J. A	Aberdeen
Embree, V. W.	Onida
* F1 1 T D	
* Elward, L. K	Doland
Frickson F G	Sioux Falls
Direction, L. G	DIOUX Lans
Erickson, O. C.	Sioux Falls
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Ewaid, P. P.	Lead
Fairbanks, W. H	Vermillion
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* Freyberg, F. W.	Mitchell
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Arritz, wm., Jr.	Mitchell
* Gage F F	Siour Falle
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*Gelber, R. M	Aberdeen
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George, W. A	Geiby
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Greenneid, J. C.	Avon
Grego, I B	Sioux Falls
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Grove, Stuart	Sioux Falls
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	n brookings
Haas, F. W.	Yankton
Haas, F. W.	Yankton
Haas, F. W Hagin, J. C	Yankton Miller
Haas, F. W Hagin, J. C Hammond, M. I	Yankton Miller Watertown
Haas, F. W Hagin, J. C Hammond, M. J	Yankton Miller Watertown
Haas, F. W Hagin, J. C Hammond, M. J. *Hanson, H. F	Yankton  Yankton  Miller  Watertown  Vermillion
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. I. 1	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs
Haas, F. W	Yankton — Yankton — Miller . Watertown Vermillion r. Valley Springs
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., S.	Yankton Miller Watertown Vermillion r. Valley Springs
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. Hanson, O. L., J. Hanson, O. L., S. Hare, J. vle	Yankton Yankton Miller Watertown Vermillion r. Valley Springs Spearfish
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., J. Hare, Lyle	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  r. Valley Springs  Spearfish
Haas, F. W	Yankton Yankton Miller Watertown Vermillion r. Valley Springs Gr. Valley Spearfish Mobridge
Haas, F. W	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Comparish  Mobridge  Los Angeles
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., S. Hare, Lyle Harris, L. D. *Hart, B. M. Harris, B. M	Yankton Yankton Miller Watertown Vermillion r. Valley Springs r. Valley Spearfish Spearfish Mobridge Los Angeles
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., S. Hare, Lyle Harris, L. D. *Hart, B. M. Hawkins, A. P.	Yankton Yankton Watertown Vermillion r. Valley Springs Sr. Valley Springs Spearfish Mobridge Los Angeles Waubay
Haas, F. W	Yankton Yankton Miller Watertown Vermillion r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., J. Harris, L. D. Harris, B. M. Hawkins, A. P. *Hayes, Paul W.	Yankton Yankton Willer Watertown Vermillion r. Valley Springs r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs
Haas, F. W	Yankton Yankton Watertown Vermillion r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, L. D. Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Hailsson, W. F.	Yankton Yankton Willer Watertown Vermillion r. Valley Springs r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs
Haas, F. W	Yankton Yankton Watertown Vermillion r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, L. D. Harris, L. D. Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Custer  St. Paul, Minn.
Haas, F. W	Yankton  Yankton  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Mina
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, L. D. Harris, L. D. Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L.	Yankton Yankton Watertown Vermillion Tr. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo Custer St. Paul, Minn. Bryant
Haas, F. W	Yankton  Yankton  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, Lyle Harris, L. D. Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills W. C.	Yankton Yankton Watertown Vermillion r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo Custer St. Paul, Minn Bryant Centerville
Haas, F. W	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, L. D. Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A.	Yankton Yankton Watertown Vermillion Tr. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo Custer St. Paul, Minn. Bryant Centerville Yankton Miller
Haas, F. W	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard
Donahoe, S. A. Doyle, J. I. Drissen, E. M. Drobinsky, M. Duggan, T. A. *Duimstra, Fred Dulaney, C. H. *Duncan, C. E. Duncan, Wm. Dunn, J. E. Eckrich, J. A. Embree, V. W. * Elward, L. R. Erickson, E. G. Erickson, O. C. Ewald, P. P. Fairbanks, W. H. Farrell, W. D. ‡ Ferris, W. T. Fiske, R. R. * Fizzgibbons, T. Fleeger, R. B. Flett, Chas. * Freyberg, F. W. * Fritz, Wm., Jr. * Gage, E. E. * Gelber, R. M. George, W. A. * Gilbert, F. J. Gillis, F. D. Graff, L. W. Greenfield, J. C. Gregg, J. B. Gregory, D. A. Grove, F. M. Grove, F. M. Grove, Stuart Gullbrandsen, G. Haas, F. W. Hagin, J. C. Hammond, M. J. * Hanson, O. L., S. Harris, L. D. * Harris, E. D.	Yankton Yankton Watertown Vermillion r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo Custer St. Paul, Minn. Bryant Centerville Yankton Howard Freeman
Haas, F. W	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, L. D. Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. J. Hohf, J. A.	Yankton Yankton Watertown Vermillion Tr. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo Custer St. Paul, Minn. Bryant Centerville Yankton Howard Freeman Yankton
Haas, F. W	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Yankton
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, L. D. Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. A. Hohf, J. A. *Hopkins, M. K.	Yankton  Yankton  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington
Haas, F. W	Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington  Arlington
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, Lyle Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. A. Hohf, J. A. Hohf, S. M. *Hopkins, M. K. *Horton, Capt. W.	Yankton  Yankton  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington  Zonganic City  Arlington  Arlington  Arlington
Haas, F. W	Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Yankton  Arlington  Neadwood
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Harsin, C. L., S. Hare, Lyle Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. J. Hohf, J. A. Hopkins, M. K. *Horton, Capt. W. Howe, F. S.	Yankton  Yankton  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington  V. O. Rapid City  Deadwood
Haas, F. W	Yankton  Miller  Watertown  Vermillion  T. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington  Zoeadwood  Yankton  Yankton
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., S. Hare, Lyle Harris, L. D. *Harris, L. D. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. J. Hohf, J. A. Hopkins, M. K. *Horton, Capt. W. Howe, F. S. *Hubner, R. F. F. *Hummer, E. R.	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Yankton  Arlington  V. O. Rapid City  Deadwood  Yankton  Signy Falls
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., J. Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. J. Hohf, J. A. Hohf, S. M. *Hopkins, M. K. *Horton, Capt. W. Howe, F. S. *Hubner, R. F. *Hummer, E. R.	Yankton  Miller  Watertown Vermillion  r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo Custer St. Paul, Minn. Bryant Centerville Yankton Howard Freeman Yankton Arlington V. O. Rapid City Deadwood Yankton Sioux Falls
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Harse, Lyle Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. A. Hohf, J. A. Hohf, S. M. *Hopkins, M. K. *Horton, Capt. W. Howe, F. S. *Hubner, R. F. *Hummer, E. R.	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington  V. O. Rapid City  Deadwood  Yankton  Sioux Falls  Lead
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., J. Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. J. Hohf, J. A. Hohf, S. M. *Hopkins, M. K. *Horton, Capt. W. Howe, F. S. *Hubner, R. F. *Hummer, F. L. Hyden Anton	Yankton  Miller  Watertown  Vermillion  T. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington  V. O. Rapid City  Deadwood  Yankton  Sioux Falls  Lead  Sioux Falls
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hars, Lyle Harris, L. D. *Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. A. Hohf, J. A. Hohf, S. M. *Hopkins, M. K. *Horton, Capt. W. Howe, F. S. *Hubner, R. F. *Hummer, E. R. *Hummer, F. L. Hyden, Anton	Yankton  Yankton  Miller  Watertown  Vermillion  r. Valley Springs  Spearfish  Mobridge  Los Angeles  Waubay  Hot Springs  Revillo  Custer  St. Paul, Minn.  Bryant  Centerville  Yankton  Howard  Freeman  Yankton  Arlington  V. O. Rapid City  Deadwood  Yankton  Sioux Falls  Lead  Sioux Falls
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Hanson, O. L., J. Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hofer, E. J. Hohf, J. A. Hohf, S. M. *Hopkins, M. K. *Horton, Capt. W. Howe, F. S. *Hubner, R. F. *Hummer, F. L. Hyden, Anton Jackson, A. S.	Yankton  Miller  Watertown Vermillion  r. Valley Springs Spearfish Mobridge Los Angeles Waubay Hot Springs Revillo Custer St. Paul, Minn. Bryant Centerville Yankton Howard Freeman Yankton Arlington V. O. Rapid City Deadwood Yankton Sioux Falls Lead Sioux Falls
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Hohf, J. A. Hohf, S. M. * Hopkins, M. K. * Horton, Capt. W. Howe, F. S. *Hubner, R. F. * Hummer, E. R. *Hummer, F. L. Hyden, Anton Jackson, R. S. Jackson, R. J.	Yankton Yankton Yankton Arlington O. Rapid City Deadwood Yankton Sioux Falls Lead Sioux Falls Lead Rapid City
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Hohf, J. A. Hohf, S. M. * Hopkins, M. K. * Horton, Capt. W. Howe, F. S. *Hubner, R. F. * Hummer, E. R. *Hummer, F. L. Hyden, Anton Jackson, R. S. Jackson, R. J.	Yankton Yankton Yankton Arlington O. Rapid City Deadwood Yankton Sioux Falls Lead Sioux Falls Lead Rapid City
Hohf, J. A. Hohf, S. M. * Hopkins, M. K. * Horton, Capt. W. Howe, F. S. *Hubner, R. F. * Hummer, E. R. *Hummer, F. L. Hyden, Anton Jackson, R. S. Jackson, R. J.	Yankton Yankton Yankton Arlington O. Rapid City Deadwood Yankton Sioux Falls Lead Sioux Falls Lead Rapid City
Hohf, J. A. Hohf, S. M. * Hopkins, M. K. * Horton, Capt. W. Howe, F. S. *Hubner, R. F. * Hummer, E. R. *Hummer, F. L. Hyden, Anton Jackson, R. S. Jackson, R. J.	Yankton Yankton Yankton Arlington O. Rapid City Deadwood Yankton Sioux Falls Lead Sioux Falls Lead Rapid City
Haas, F. W. Hagin, J. C. Hammond, M. J. *Hanson, H. F. *Hanson, O. L., J. Harris, L. D. * Harris, L. D. * Hart, B. M. Hawkins, A. P. *Hayes, Paul W. Hedemark, T. A. Heileson, W. E. Hendricks, Esten Hickman, G. L. *Hill, W. H. Hills, W. C. Hofer, E. A. Hohf, J. A. Hohf, J. A. Hohf, J. A. Hohf, J. A. *Hopkins, M. K. * Horton, Capt. W. Howe, F. S. *Hubner, R. F. *Hummer, E. R. *Hummer, E. R. *Hummer, F. L. Hyden, Anton Jackson, A. S. Jackson, R. J. Jacoby, Hans Jacotel, J. A. Jernstrom, R. E. Johnson, Geo. E *Johnson, Geo. E *Johnson, Geo. E *Jones, J. P. Jordan, L. E. Jorgenson, M. C.	Yankton Yankton Yankton Arlington O. Rapid City Deadwood Yankton Sioux Falls Lead Sioux Falls Lead Rapid City

Jordan, Geo. T.  Joyce, E.  Judge, W. T.  * Kalayjian, D. S.  Karlins, W. T.  Keegan, Agnes M.  * Keeling, C. M.  * Keene, F. F Wessir  Kegaries, D. L.  Keller, S. A.  Kemper, C. E.  Kenney, H. T.  Kershner, C. M.  Kilgaard, R. M.  Kimble, O. A.  King, H. I.  King, Owen  Kittelson, J. A.  * Knoll, Wm.  * Krasner, C. D.  * Kruzich, S. J.  Lacey, V. I.  Lamb-Barger, H. H.  * Lampert, A. A.  Lanam, M. O.  Larsen, M. W.  * Lemley, R. E.  * Lemon, Maj. R. G.  Lenz, B. T.  Leonard, B. B.  Leraan, L. G.  Lietzke, E. T.  Lima, Frank  * Lipton, Maj. Harold  Lloyd, J. H.  * Lovre, S. C.	
Jordan, Geo. T.	Vermillion
Toyce E	Hurley
Judge, W. T.	Milbank
* Kalavijan, D. S.	Parker
Karlins W. T.	Webster
Keegan, Agnes M.	Aberdeen
* Keeling C M	Springfield
* Keene, F. F. Wessir	ogran Springs
Kegaries, D. L.	Rapid City
Keller S. A.	Sioux Falls
Kemper, C. E.	Viborg
Kenney, H. T.	Watertown
Kershner, C. M	Brookings
Kilgaard, R. M.	Watertown
Kimble, O. A.	Murdo
King, H. I.	Aberdeen
King, Owen	Aberdeen
Kittelson, J. A.	Sioux Falls
*Kittelson, Otis	Yankton
* Knoll, Wm	Hot Springs
* Krasner, C. D	Hot Springs
*Kruzich, S. J.	Aberdeen
Lacey, V. I	Yankton
Lamb-Barger, H. H.	Sioux Falls
*Lampert, A. A	Rapid City
Lanam, M. O	Sioux Falls
Larsen, M. W.	Watertown
*Lemley, R. E	Rapid City
* Lemon, Maj. R. G	Rapid City
Lenz, B. T	Huron
Leonard, B. B	Yankton
Leraan, L. G.	Hartford
Lietzke, E. T.	Beresford
Lima, Frank	Hoven
* Lipton, Maj. Harold.	Rapid City
Lloyd, J. H	Mitchell
Lloyd, J. H	Humbolt
Mabee, D. R. Mabee, O. J. Magee, W. G. Maire, Mai. E. D. Malloy, J. F.	Mitchell
Mabee, O. J.	Mitchell
Magee, W. G.	Watertown
Maire, Maj. E. D	Kapia City
Malloy, J. F	Carton
Maning E E	Custon
Mannion I E	Gragory
Malster, R. M. Manning, F. E. Mannion, J. E. Martin, H. B.	Harrold
Mattor N E	Lead
Marvin Thos R.	Faulkton
* Mauss, Capt. I. H	Rapid City
Maxwell, R. T.	Clear Lake
Mayer, R. G.	Aberdeen
McBroom, D. E.	Redfield
*McCarthy, Paul V	Aberdeen
McDonald, C. J	Sioux Falls
McIntyre, P. S.	Bradley
*McGonigle, J. P	Rapid City
McGreevy, J. V	Mitchell
*Merryman, M. P	Rapid City
* Meyer, Maj. C. A	Rapid City
Meyer, W. L.	Sanator
Mihran, M. K.	Rapid City
* Miller, Geo. H	Spearnsh
Miller, H. A.	Brookings
Mills, G. W.	D:1 Cin-
Minty, F. W.	Rapid City
Morrisser XA XA	Diagra
Moreoman C E	Hot Springs
Morsa W F	Rapid Cim
Muggle T A	Madienn
* Mullen R W	Sionx Falle
Murdy B C	Aberdeen
Murdy Roht	Aberdeen
Murphy, I. C.	Murdo
Nelson, T. A.	Sioux Falls
Nessa, N. I.	Sioux Falls
Mannion, J. E. Martin, H. B. Mattox, N. E. Marvin, Thos. R. * Mauss, Capt. I. H. Maxwell, R. T. Mayer, R. G. McBroom, D. E. *McCarthy. Paul V. McDonald, C. J. McIntyre, P. S. *McGonigle, J. P. McGreevy, J. V. *Merryman, M. P. * Meyer, Maj. C. A. Meyer, W. L. Mihran, M. K. * Miller, Geo. H. Miller, Geo. H. Mills, G. W. Minry, F. W. Morehouse, E. M. Morrissey, M. M. Morseman, C. F. Morse, W. E. Muggly, J. A. * Mullen, R. W. Murdy, B. C. Murdy, Robt. Murphy, J. C. Nelson, J. A. Nessa, N. J. Newby, H. D.	Rapid City
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*Nietfeld, A. B. Nilsson, F. C. Northrup, F. A. *Nyquist, R. H. Ohlmacher, J. C. *Olson, O. O'Toole, T. F. x Overton, R. V. *Owen, G. S. Owen, N. T. Pangburn, M. W. Parke, L. L. Peabody, P. D., Peeke, A. P. Pemberton, M. O *Pfister, Faris Pittenger, E. A. * Pleissner, Capt. * Posthuma, Anne Quinn, R. J. Radusch, F. J. * Raibourn, R. L. Ramsey, Guy Randall, O. S. Ranney, T. P. Reagan, R. Reding, A. P. Richards, Geo. H. Rieb, W. G. Riggs, T. F.	JOORINAL-DANCET
*Nietfeld, A, B	Sioux Falls
Nilsson, F. C	Sioux Falls
Northrup, F. A.	Pierre
*Nyquist, R. H	Ft. Meade
tOlean O	Siour Falle
Opheim O V	Sioux Falls
O'Toole, T. F.	Rapid City
x Overton, R. V	Winner
*Owen, G. S	Rapid City
Owen, N. T	Rapid City
Pangburn, M. W	Sione Folle
Parko I. I.	Canton
Peabody, P. D.	IrWebster
Peabody, P. D.,	SrWebster
Peeke, A. P	Volga
Pemberton, M. O	Deadwood
Pittongor E A	Abardaan
* Pleissner, Capt. I	C. W. Rapid City
* Posthuma, Anne	Sioux Falls
Quinn, R. J	Burke
Radusch, F. J	Rapid City
* Raibourn, R. L	Hot Springs
Ramsey, Guy	Sioux Falls
Rangan, C. S	Aherdeen
Reagan, R	Sioux Falls
Reding, A. P.	Marion
Richards, Geo. H	Watertown
Rieb, W. G	Parkston
Riggs, T. F.	Pierre
* Doborts E T	Hot Springs
Rodine John	Aherdeen
* Rosenstock, Chas.	Hot Springs
*Rousseau, M. C.	Watertown
Rudolph, E. A.	Aberdeen
Reding, A. P. Richards, Geo. H Rieb, W. G. Riggs, T. F. Robbins, C. E. * Roberts, F. J. Rodine, John * Rosenstock, Chas. * Rousseau, M. C. Rudolph, E. A. * Sackett, R. F. Sadock, T. R. * Salladay, I. R. * Sandy, Capt. K. I. * Sawyer, Maj. J. C. Saxton, W. H. Saylor, H. L. Scheib, A. P. Schuchardt, I. L. Schultz, S. Schwartz, E. R. Schuchardt, I. L. Schultz, S. Schwartz, E. R. Scheman, K. E. * Sherman, K. E. * Sherman, K. E. * Sherwood, C. E. Shirley, J. C. Smiley, J. C. Smiley, J. C. Smith, F. C.	Parker
Sadock, I. K	Wagner Diarra
*Sandy Capt K. I	Rapid City
*Sawver, Mai. I. C	Mobridge
Saxton, W. H	Huron
Saylor, H. L.	Huron
Scallin, Paul R.	Redfield
Scheib, A. P	Abardaan
Schultz S	Phillip
Schwartz, E. R.	Wakonda
Sercl, W. F	Sioux Falls
Shapiro, Barnet .	Rapid City
*Sherman, K. E	Balla Fourche
Sharwood C F	Delle Podiche Madison
Shirley, I. C.	Huron
Smiley, J. C	Deadwood
Smith, A. J.	Yankton
* Smith, F. C	Hot Springs
*Soe, Carl A	Panid City
Spain, M. E	Mobridge
Stansbury, E. M.	Vermillion
Stenier, Peter K.	Yankton
Stegman, S. B	Salem
Stenberg, E. S	Sioux Falls
Stevens, G. A	Sioux Falls
Smiley, J. C. Smith, A. J. *Smith, F. C. *Soe, Carl A. Spain, M. L. Spiry, A. W. Stansbury, E. M. Stenier, Peter K. Stegman, S. B. Stenberg, E. S. Stevens, G. A. *Stevens, R. G. * Stewart, J. L.	Spearfish
*Stewart, M. J	Sturgis
Stewart, N. Wells	Lead
Struble, A. J.	Centerville
*Studenberg, J. E.	Kadoka
Swift, Chas. L	Martin
Tank, M. C	Brookings
Stevens, R. G. ** * Stewart, J. L. ** * Stewart, M. J * Stewart, N. Wells * Struble, A. J * Studenberg, J. E. * Sundet, N. J * Swift, Chas. L * Tank, M. C * Tauber, K. S	Yankton

Threadgold, J. O Belle Fourche Tobin, F. J Mitchell *Tobin, L. W Mitchell *Torwick, E. E Volga Totten, F. C Lemmon *Townsend, L. J Belle Fourche *Thompson, Arnold Sioux Falls Trado, A Pietre Tschetter, J. S Huron Tschetter, Joseph Huron Tschetter, P. S Huron	Unruh, B. H. Emery Van Demark, G. E. Sloux Falls *Van Heuvelan, G. J. Pierre Volin, H. P. Sloux Falls Waldorf, C. E. Redfield Walters, S. J. Watertown Watson, E. S. Brookings *Wayne, D. M. Redfield Weber, R. A. Mitchell Weishaar, Chas. Aberdeen Westaby, J. R. Madison	Whitside, J. D. Aberdeen Whitson, G. E. Madison Wilkinson, E. A. Highmore Willen, Abner Clark Williams, F. E. Wakonda Willoughby, F. C. Howard Winkler, Lt. H. A. Rapid City Younker, F. T. Sisseton *Zarbaugh, G. F. Deadwood *Zellhoefer, H. E. Sioux Falls Zimmerman, Goldie Sioux Falls
*Member of Armed Forces * Honorary or Affiliate x Deceased ‡ Returned to practice,		
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Adams, H. P. Huron Adams, M. E. Clark Andre, Hugo C. Vermillion Athey, G. L. Chamberlain Auld, M. A. Yankton	Duncan, C. E. Pollock Ferris, W. T. Chamberlain Fitzgibbon, T. G. Sioux Falls Gelber, M. R. Aberdeen Gilbert, F. J. Belle Fourche	Nietfeld, A. B. Sioux Falls Nyquist, R. H. Ft. Meade Olson, Orland Stoux Falls Owen, Stanley Rapid City Pfister, Faris Webster

Buchanan, R. A. Huron
Burgess, R. E. Gertysburg
Bushnell, I. W. Elk Point
Catey, Robert Mobridge
Clark, B. S. Spearfish
Cooper, Geo. Watertown
Craix, Allen Sioux Falls
Davidson, H. E. Lead
Dick, Fred Vermillion
Dumistra, Fred Sioux Falls

t Returned to practice.

Billion, T. J., Jr. Sioux Falls Bliss, R. J. Sioux Falls Bloemendall, G. J. Ipswich Boyd, F. E. Flandreau Buchanan, R. A. Huron

‡ Ferris, W. T	Chamberlair
Fitzgibbon, T. G.	
Gelber, M. R	
Gilbert, F. J	
Hanson, H. F	
Manage O 1 7	verminor
Hanson, O. L., J	
Hayes, P. W	
Hill, W. H	
Hubner, R. F	Yanktor
Hummer, F. L	Lead
Iones, J. P	Mitchel
Kittelson, Otis	Yanktor
Kruzich, S. J	
Lampert, A. A.	
Lemley, R. E.	
Lovre, S. C	Fumboldi
McCarthy, P. V.	Aberdeen
McGonigle, J. P.	
Merryman, M. P.	Rapid City

Nietfeld, A. B. Sioux Falls
Nyquist, R. H. Ft. Meade
Olson, Orland Sioux Falls
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Sacket, R. F. Parket
Salladay, I. R. Pierre
Sherman, K. E. Sturgis
Sherrill, S. Belle Fourche
Soe, Carl A. Lead
Stewart, M. J. Sturgis
Studenberg, J. E. Gregory
Thompson, Arnold Sioux Falls
Tobin, L. W. Mitchell
Wayne, D. M. Redfield
Williams, F. E. Wakonda
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Zellhoffer, H. W. K. Sioux Falls

#### WOMEN'S AUXILIARY TO THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

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Mrs. G. S. Adams of Yankton was elected president of the women's auxiliary to the South Dakota state medical association at a meeting of the advisory board at the home of the retiting oresident. Mrs. D. S. Baughman, Other officers are: Mrs. Robert Murdy. Aberdeen, president-elect; Mrs. W. Duncan, Webster and Mrs. H. R. Brown, Watertown, vice tresidents. Mrs. J. H. Lloyd, recording secretary and Mrs. M. W. Larsen, Watertown, secretary-treasurer. A short memorial service was held in memory of Mrs. H. W. Sherwood of Doland, a charter member of thirty-five years standing: the following oblivary was read:

Mary Josephine Camp was born December 12, 1866, in Bryan, Ohio. She spent her girlhood on a farm near Stryper, Ohio. After finishing the country school, she became a tescher and taught for two or three terms. She then went to Detroit, Michigan, and served as an apprentice to a woman's tallor, learning that trade. However, she decided she wanted more education, so went back to Ohio and attended Fayette Normal There she met and matried Horace Watson Sherwood, August 11, 1891. In the fall of 1892 they moved to Ann Arbor. Michigan, living there while her husband went to medical school. After graduation they established their home an Belmore, Ohio. A few years later, feeling they wanted to raise their family in a less thickly populated country, they moved to Doland, South Dakota. Her home was there from 1902 until the time of her death, July 13, 1944 She was the mother of ten children, eight of whom are still living. Of her sons, two became doctors and one a druggist. She was an active member of the Methodist church and Eastern Star

Mrs. D. S. Baughman, retiring breadent, read the report which she had made to the national board. It showed that the group had engaged in all but four of the twento-four war activities suggested by the national women's auxiliary, including: training of murse-ailes; accurang of music and musical instruments for hospital ships; organization of Girl Srout teams for the sale of stamps and bonds and making scrap books for hospital ships; making sewing kits for the Red Cross; collection of garments for the clothing drive; making of surgical dressings; taking part in USO work and other community activities related to the war

Money in the benevolent fund, now amounting to \$1,800, is invested in war bonds, the report showed. It has increased during the year through memorial gifts. (See Benevolent Fund report which follows.)

Membership in the auxiliary now numbers 131, it was recerted. There are ten organized and two unorganized districts. The smallest unit reorganized this year and increased its membership from three to four, making it 100 per cent. The largest unit has 26 members.

The state president visited many districts. These meetings were pleasant experiences and led to a better understanding of auxiliary problems. While in the Black Hills, she called on Mrs. R. D. Jennings, first state president, who is still very active and interested in auxiliary work although 88 years of age. The state president-elect, Mrs. Baughman, attended the national convention at Chicago in June, and the conference in November, and reported that inspiration and information afforded by these meetings cannot be overestimated.

Benevolent Fund Report

This report on the benevolent fund sketches briefly the history of the development of this fund and its purpose and gives a report of its funds.

In 1939 the ladies of the medical auxiliary became interested in the establishment of such a fund following the investigation of similar funds in other states, especially Pennsylvania and Colorado. After a considerable amount of correspondence they decided to establish a fund with the avowed purpose of collecting a sum of money to be used in the assistance of needy physicians or their families. They collected a considerable amount of money from subscriptions and donations and appeared before the state medical association in assembly at Watertown in May of 1940 asking that the state association join with the auxiliary in the joint administration and raising of this fund.

The women's auxiliary amended their by-laws as follows:
A1. The State Medical Auxiliary shall have a committee on Benevolence to aid jointly with a similar committee from the South Dakota State Medical Association as a State Medical Benevolent Committee, which shall have to do with the development and administration of monies for the welfare of indigent physicians and family.

A2. The Auxiliary Committee shall consist of the recording secretary along with a member of the Executive Board and two members at large, these three being chosen by the Board and to serve for a period of three (3) years each. Long terms are desirable and shall overlap present members retiring in alphabetical order in 1943, 1944, and 1945.

B1. The State Medical Benevolent Committee shall elect its own chairman, secretary and treasurer. This committee shall have in its charge, all relief funds of both organizations and be empowered to enlarge it through subscriptions, legacies, donations and in whatsoever way they may desire and also be responsible for its complete administration, (keeping, investing, expending). It shall be incumbent upon this committee to formulate a set of rules governing and quartering the permanency, safety and confidential aspects of the conduct of this committee and fund. Further, this committee shall make a complete report annually to the executive board of the South Dakota state medical association and the women's auxiliary to the South Dakota state medical association.

On May 25, 1943, \$1,234.50 was invested in bonds with maturity value in 1955 at \$1,675.00. That left a balance in the savings account of \$34.72. The following has been added since that date. June 30, 1943—interest, 5c; July 13, 1943—Madison district auxiliary, \$10.00; December 3, 1943—interest, 10c; June 30, 1944—interest, 15c; July 15, 1944—memorial to the late Mrs. H. W. Sherwood by the staff of Madison Community hospital, \$10.00; December 31, 1944—interest, 96c; March 7, 1945—Pierre district auxiliary, \$10.00; March 31, 1945—interest, 77c; May 11, 1945—Madison district auxiliary, \$10.00, making a total of \$226.87 cash in bank and the bonds cost \$1,239.50, maturity value \$1,675.00.

Contributions made to the fund by the South Dakota state medical association on the basis of 50c per active member have been as follows: May 2, 1941—\$160.00; May 12, 1942—\$153.00; April 10, 1943—\$145.00 and July 15, 1944—\$125.00.

#### ROSTER, 1945 — MEMBERSHIP BY DISTRICTS

	ROSTER, 1945 — MEMBI
ABERDEEN DIST	RICT No. 1
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President-Mrs. J. L. Calene Secretary-Mrs. R. G. Mayer	Aberdeen
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Gelber, Mrs. R. M.	Aberdeen
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Ranney, Mrs. T. P.	Aberdeen
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Brown, Mrs. H. Russell	Watertown
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Hubbs, Mrs. Roy S.	
Jorgenson, Mrs. M. C.	Watertown
Kilgard, Mrs. R. M.	Watertown
Larsen, Mrs. Myron W.	Watertown
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Rousseau, Mrs. M. C.	Watertown
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Soular Mrs Howard	Huron
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Techartan Mrs I S	Huron
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Techattan Mrs Daul S	Huron
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President-Mrs. O. J. Mabee	Mitchell
Secretary—Mrs. J. H. Lloyd	Mitchell
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President—Mrs. J. A. Hohf Yankton
Secretary—Mrs. F. J. Abts Yankton
Abts, Mrs. F. J. Yankton
Abts, Mrs. F. J. Yankton
Adams, Mrs. G. S. Yankton
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Schwartz, Mrs. A. J. Centerville

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Bailey, Mrs. J. D: Rapid City
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Dawley, Mrs. W. A. Rapid City
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Jernstrom, Mrs. R. E. Rapid City
Kegaries, Mrs. D. L. Rapid City
Mills, Mrs. Geo. W. Wall

September, 1945	345
Ball, Mrs. Wm. R	Minty, Mrs. F. W. Rapid City
Bobb, Mrs. B. A. Mitchell	Morse, Mrs. Wm. E. Rapid City
Bobb, Mrs. C. S. Mitchell	Newby, Mrs. H. D. Rapid City
Delaney, Mrs. Wm. A	O'Toole Mrs T E
Freyberg, Mrs. F. W. Mitchell	O'Toole, Mrs. T. F. Rapid City Spain, Mrs. M. L. Rapid City
Gillis, Mrs. F. D. Mitchell	
Lloyd, Mrs. J. H. Mitchell	ROSEBUD DISTRICT No. 10
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McGreevey, Mrs. J. V. Mitchell	Lande, Mrs. L. E. Winner
Tobin, Mrs. F. J	Mannion, Mrs. J E. Gregory
Tobin, Mrs. Leonard Mitchell	Overton, Mrs. R. V. Winner
Weber, Mrs. R. A. Mitchell	Quinn, Mrs. R. J. Burke
SIOUX FALLS DISTRICT No. 7	NORTHWEST DISTRICT No. 11 (Currently non-active)
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Secretary-Mrs. H. M. Dehli Colton	WHETSTONE VALLEY DISTRICT No. 12
Treasurer-Mrs. L. J. Pankow Sioux Falls	(Currently non-active)
Billion, Mrs. Thomas J. Sioux Falls	Duncan, Mrs. Wm. Webster
Brandon, Mrs. P. E. Sioux Falls	
Dehli, Mrs. H. M Colton	<del></del>
Donahoe, Mrs. S. A	
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Two months later the Association met in special session to are members Drs. J B LeBlonde, Stephen Olney, H. Stires and W. A. German of Sioux Falls, O. O. Sawyer of Dell Rapids, M. M Clark and F. P. Smith of Canton, S. V. Ross of Yankton and A. L. Peterman of Parker. Credentials Ross of Yankton and A. L. Peterman of Parker. Credentals were received from delegates from the Black Hills Medical society as follows: Drs. Joel Houghton, Hot Springs; D K Dickerson, Lead City; J. C. O'Neal, Deadwood; Jos Van Buskurk, Rapid City In May 1883 the membership was augmented by Drs Fredk. Andros and W. E Crane, Mitchell; S. Austin Brown, Sioux Falls; C. J. Cummings, Montrose, C P. Bissell, Valley Springs Bidding for the next annual meeting were Huron, Pietre, Aberdeen, Mitchell and Chamberlain. The new corrustions seems to have been activation seems to have been activation seems to have been activation seems to have been activations. new organization seems to have been safely launched

May 27, 1885, a new constitution was adopted and the name Dakota Medical Society assumed. In 1888 a fee-bill covering surgical operations was adopted with seventy-three items listed and it is unfortunate that space forbids the reprinting of it in this number that it might be compared with the tentative submittance of the Medical Economics committee of the North Dakota State Medical Association which appeared in the August issue of the Journal-Lancet

At the Sioux Falls meeting, June 12, 1890, the name was changed to the State Medical Society of South Dakota At that time "after eight months of hard and continued labor in collecting and compiling the contents" the proceedings of the society covering the years to date were published, that being the first time they were in print.



Serves the MINNESOTA, NORTH DAKOTA,

Medical Profession of SOUTH DAKOTA AND MONTANA

Official Journal of the American Student Health Assn., Great Northern Railway Surgeons' Assn., Minneapolis Academy of Medicine, Montana State Medical Assn., North Dakota Society of Obstetrics and Gynecology, North Dakota State Medical Assn., Northwestern Pediatric Society, Sioux Valley Medical Assn., South Dakota Public Health Assn., South Dakota State Medical Assn.

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Dr. J. C. Shirley Dr. E. Lee Shrader Dr. E. J. Simons Dr. J. H. Simons Dr. S. A. Slater Dr. W. P. Smith Dr. C. A. Stewart Dr. S. E. Sweitzer

Dr. W. H. Thompson Dr. E. L. Tuohy Dr. M. B. Visscher Dr. O. H. Wangensteen Dr. S. Marx White Dr. H. M. N. Wynne Dr. Thomas Ziskin, Sceretary. Secretary.

LANCET PUBLISHING CO., Publishers, 84 South Tenth Street, Minneapolis 2, Minnesota

MINNEAPOLIS, MINNESOTA, SEPTEMBER, 1945

#### VACATIONS NOW AND THEN

Dr. James M. Hayes Dr. A. E. Hedback Dr. E. D. Hitchcock Dr. R. E. Jernstrom Dr. A. Karsted Dr. L. W. Larson Dr. W. H. Long

Dr. O. I. Mabee Dr. J. C. McKinley

Summer weather is better adapted to reading than writing, and in pursuit of that pastime we chanced upon a couplet written by Richard Brinsley Sheridan about one hundred fifty years ago that ran like this:

"You write with ease to show your breeding, But easy writing's curst hard reading."

There was something enigmatic about the expression but suddenly a glint of light uncovered the thought that at first was hidden from one benumbed by the summer heat and poetic arrangements. By taking egotism out of the first line, transposing the last, and finally making use of the converse put in modern twentieth century dress mind you; we would show consideration for the reader rather than the writer by modestly letting our friends in on the secret that "Easy reading's darned hard writing."

Medical journals take no vacations but it is a well established tradition that they urge their readers at least

once a year to do so. With travel restricted as it has been distant trips are not to be considered. It used to be quite feasible to have a fortnight in Europe on a month's holiday including two ocean voyages that to most vacationists were particularly invigorating. The "inner passage" to Alaska was always a popular trip and there is great likelihood that it will be open to tourist travel in another year. A return trip to Skagway and Whitehorse would be interesting from reports of the changes that war activities have brought to these places. A cruise on the great lakes may still be taken without hampering movements of dischargees. Cuba is out of the question in planning a summer vacation but this and other points in the Caribbean may well be considered for next winter. February is the best time to see Havana, horse racing to the accompaniment of good band music, and fiestas galore. Independencia day is always celebrated with great pageantry, and once a week before and after that event parades form with colorful floats and gay particiSeptember, 1945 347

pants whose exuberance requires this extended celebration. In Mexico City a light overcoat is a desirable habiliment every evening of the year so that makes a good vacation spot any time. The wire grass hazard right smack in front of the first tee at the Mexico City golf course is a challenge to accuracy, distance and height, and after this warning to others we have decided to take a little vacation walk around Lake of the Isles.

A.E.H.

#### HAVE YOU ANYTHING TO SAY?

For some reason the medical profession has always tended to produce more than its share of writers. Perhaps the psychologists would say this is because its practice demands more repression than others, that the odds are so often stacked against it that the more sensitive of its followers seek in writing release from its frustrations. (Of a certain defunct editor and author it used to be said "if he didn't have his journal he'd have boils"). Or maybe medicine is indeed the art we like to think it and so easily spills over into one of its sister arts. Granted that the writing compulsion differs with heredity, environment and libido, we nevertheless suspect that dozens of our readers are bottling an urge to express themselves on paper, that many have articles bubbling in their systems the release of which would not only bring them inner satisfaction but would inform and stimulate their professional brothers and make their families proud.

A medical journal differs from most other periodicals in that every one of its readers is an actual or potential contributor. This not only makes for a closer relationship between readers and editors but it gives to the latter an added responsibility—a responsibility to encourage new writers and convince them that their papers will be welcomed and receive the same consideration as if written by their state association's president, to renew the enthusiasm of former contributors to the point where they will yield to the prickly urge to come back with an even livelier article.

Medicine as everyone knows is now going through one of the most exciting periods in its history. Medical men of the Northwest, like medical men everywhere, are more on their toes than they have been in years. They are trying out new techniques, testing new drugs, thinking and arguing about the new social problems that have risen to plague them, insurance and prepayment plans, doctor and hospital shortages, relocating returned M.C.s, the stand they should take toward permitting medical refugees to practice within their state. The JOURNAL-LANCET is eager to hear from its readers on all matters, medical and social that pertain to the profession. If its primary function is to publish scientific papers, its secondary is to furnish a common meeting ground for the exchange of opinion and a hearing for every stimulating idea. You may have noticed that from time to time there occurs among our book reviews a report on a book not strictly medical. This is because we subscribe wholeheartedly to the belief that the broader a doctor's horizon the better he will cope with the problems of his community as well as with his patients' individual ills.

As everyone knows who has tried it, writing may be, usually is, hard work, but it is also an exciting and recreating diversion. An article for the Journal-Lancet presents fewer technical difficulties than do many other types of writing. There is no technique of plot construction, dialogue, characterization to be mastered. True, ability to choose the right word for the right place will have a more subtle influence than you suspect in easing your readers into quiet acceptance of your hypothesis. But if you organize your material in orderly fashion and state your case clearly the style will take care of itself. Always provided, that is, that you have something of interest and unhackneyed to say, and that you avoid in so far as possible what Gill calls "verbal burns," those tempting idle words that actually add nothing at all but confusion to your copy.

Last year a New York publisher offered a prize of \$3,500 in addition to royalties for the best book on medical affairs for laymen. The prize went to Dr. Carl Binger for his The Doctor's Job. We don't know Dr. Binger, although his book made us want to, but we are willing to wager that Dr. Binger was as surprised as anyone else to find himself a prize-winning author. Perhaps he began by writing medical papers. You may not be an incipient genius, you may not even win a prize, but if you are an up-and-coming doctor with enthusiasm for your work you cannot fail to have something interesting to say on paper. Your Journal-Lancer offers you an agreeable place in which to say it. So get that paper out of your system. Writing it may save you or your wife "a netvous breakdown," and the chances are you will be surprised to see how good you are.

M.U.

#### POLIOMYELITIS: THE PATHOLOGY AND ITS CLINICAL SIGNIFICANCE

In 1870, Charcot and Joffroy 1 first pointed out that the pathological changes in poliomyelitis were limited to the anterior horn cells of the spinal cord. Since that time a great deal of literature has been published on this subject. In spite of the fact that these studies have been carried out by many investigators in different countries and laboratories, the reported histopathological alterations have remained amazingly consistent. There remains no doubt that the major pathologic changes in poliomyelitis are in the central nervous system and no scientific investigator has as yet found any evidence to the contrary. Changes do not occur within the skin, subcutaneous tissues, muscles or even peripheral nerves (peripheral mechanism) during the acute stage of this disease, and any change appearing later is invariably secondary to a destruction of the motor neuron.

In poliomyelitis two types of changes are observed within the central nervous system; namely, a mesodernal inflammatory reaction and a nerve cell alteration. The former consists of small hemorrhages, diffuse and perivascular collections of leukocytes and areas of tissue softening and necrosis. These changes, although sometimes very striking in appearance, are actually relatively unimportant from a clinical standpoint since they pro-

duce functional disturbances only by a secondary affect upon the neighboring neurons.

From what has already been stated, it is apparent that the primary nerve cell involvement constitutes the most important pathological alteration in this disease. Such nerve cell changes may result from either the inflammatory changes or from the specific action of the virus upon these cells. This neuronal damage is usually spotty in nature, implicating only scattered neuronal elements within various segments of the cord or certain regions of the brain. The most consistent changes occur within the anterior horns of the lumbar cord and within the cranial nerve nuclei of the medulla. The ultimate fate of the injured neuron will depend upon the severity of its injury. The more severely damaged cells undergo chronic progressive changes and complete destruction. However, the virus does not necessarily destroy all of the injured and non-functioning neurons. In fact, it often produces only partial changes in the affected nerve cells, allowing them to recover within a period of a few weeks or months, depending upon the severity of the original involvement.

The clinical course in poliomyelitis invariably can be correlated with the pathological alterations within the anterior horn cells since it is these cells that innervate the peripheral mechanism. Charcot and Joffroy 1 as early as 1870 emphasized the importance of this neuronal damage and demonstrated its accurate correlation with the clinical paralysis and muscle atrophy. The extent to which clinical impairment will occur in poliomyelitis after paralysis has set in will, therefore, depend upon the extent and severity of the anterior horn cell involvement. Often in cases where the clinical picture indicates a widespread disease process, the cell alterations are mild enough to allow for an almost complete reversal of neuronal disease and a corresponding return of function. When the injured nerve cells undergo irreversible changes, the corresponding functional unit permanently loses its ability to act, regardless of the rapidity and nature of the therapeutic procedures instituted. In such cases the associated peripheral nerves will show evidence of secondary degeneration with ultimate replacement of the degenerated nerve tissues by fibrous tissue. The corresponding muscles will also undergo very rapid degeneration and ultimate fibrosis. This constant correlation between the nerve cell damage and the paralysis and muscular attophy can best be demonstrated in the more chronic cases of poliomyelitis where one can accurately compare the spinal cord changes, the associated involvement of the peripheral nerves and the distribution of the atrophic non-functioning muscles. Invariably the involved muscles receive their innervation from altered nerves arising from diseased anterior horn cells within the corresponding segment of the cord.

As additional evidence for this specificity of the virus for the central nervous system, one might mention recent studies on the isolation of the virus from various body tissues of persons dying of poliomyelitis.<sup>2</sup> The results of these tests indicate that the virus is found predominantly in two systems, in certain regions of the nervous system and in the alimentary tract. These studies cer-

tainly add weight to the already proven view that the pathology in poliomyelitis is "central" in nature rather than "peripheral" as has been speculated recently.

A. B. BAKER

<sup>1</sup>Charcot, J. A., and Jostroy, A.: Cas de paralysie infantile spinale avec lesions des cornes anterieures de la substance grise de la moelle epiniere, Arch, de physiol. 30:134 (1870).

<sup>2</sup>Sabin, A. B., and Ward, Robert: The natural history of human poliomyelitis: I. Distribution of virus in nervous and non-nervous tissues. J. Exper. Med. 73:771 (June) 1941.

## News Items

Dr. Walter H. Gilsdorf has moved to Valley City to take up practice there. He has practiced in New England for the past thirteen years.

Dr. Hugh A. McIntosh has arrived in Kenmare after a fourteen months service with the 1st Marine Division in the South Pacific. He will be associated with Dr. David J. Halliday and Dr. Robt. T. Gammell at the Deaconess hospital.

Senator Young has announced that President Truman has signed an authorization for a veterans hospital at Minot.

Dr. I. H. Mauss, Pennington county health officer, gave the examinations at the preschool clinic held in Rapid City, June 13. The object of these preschool clinics is to give every child an opportunity for a physical examination with the hope that discovered defects will be corrected before the opening of schools in the fall. The report discloses that seventy-four children were examined, of whom all but six needed either defects corrected or inoculations. Forty-one others were in need of dental attention.

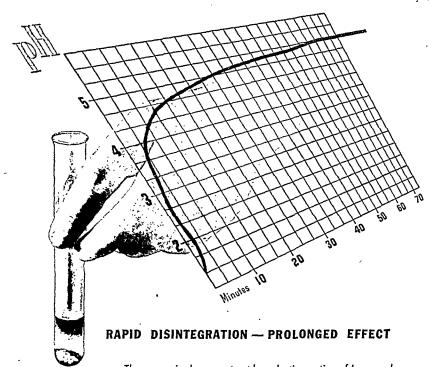
Captain E. L. Wagner of Sioux Falls, flight surgeon, has been awarded the Soldier's Medal for aiding in the rescue of the badly injured crew of a B-24 which crashed in flames at his base in Italy. Captain Wagner served two years with the 376th Bombing Group in Italy and Africa.

Dr. Carl F. Kraenzel, associate professor department of economics at Montana State college and Dr. L. B. Byington of Denver, Colorado, senior surgeon in the federal public health service, spoke at a meeting held at Great Falls on July 13 for the purpose of explaining the anticipated postwar health centers and the inventory of Montana hospitals now under way.

Dr. Harry J. McGregor, Great Falls, has been reappointed county physician for a one-year term, an office he has held intermittently for seven years.

The Montana State Medical association presented an honorary membership to Mrs. H. W. Peterson of Billings, field commander of the American Cancer society in the northwest states and president of the Public Health league of Montana, for her outstanding work in these fields. In addition, Mrs. Peterson was awarded an honorary membership in the association. The presentation was made by Dr. Jas. C. Shields.

(Continued on page 350)



The reassuringly prompt yet long-lasting action of Improved Syntrogel makes this Roche antacid the medication of choice for the modern treatment of hyperacidity. Through prolonged adsorption and neutralization of excess acid, Improved Syntrogel maintains the pH of the stomach close to the neutral point without inducing an undesirable secondary acid rise. Another outstanding feature of Improved Syntrogel is its exceptionally rapid disintegration resulting in unusually prompt relief of pain and distress due to hyperacidity and spasticity. Available in bottles of 48 and 96 tablets . . . . HOFFMANN-LA ROCHE, INC., Roche Park, Nutley 10, N. J.

## In Memoriam

Mabel Simis Ulrich, M.D. 1878 - 1945

Death has invaded the sanctum of this journal. During the printing of our August issue our vigorous, cheery, sapient, 67-year-old contributing editor, book reviewer, manuscript overseer and staff writer of clever and penetrating editorials lost her life in a 50 foot fall from a cliff at her summer home, Marine-on-St. Croix, Minnesota.

For a year and a half Dr. Ulrich had devoted many of her precisely organized hours to her editorial work which was her pride and diversion. A posthumous editorial, "Have You Anything to Say?" appears under the masthead of this number. Its candor is typical. The writer's service to this organization was an influence for propriety in treatment and sprightliness therewith. She was a stalwart. Responsibility was inherent in her and no writing task daunted her energy, judgment or clear perception, all of which were extraordinary. For more than twenty-five years she espoused altruistic and progressive causes-women's suffrage, medical advancement, uncensored book distribution, state and regional development, justice to the refugee physician, a voice for the inarticulate, encouragement to the disadvantaged. Judicious and capable, with facile pen and positive personality, she pulled her weight in every performance. Her deft touch and sparkling comment on the written word and her discriminatory reasoning are contributions left as a decidedly valuable deposit here.

Dr. Ulrich was a native of Brooklyn, New York, a graduate of Cornell University and Johns Hopkins University school of medicine, Baltimore, onetime practicing physician in Minneapolis, formerly regional director of American Red Cross for Minnesota, the Dakotas, and Montana, member of the Minnesota board of health, also of the Minneapolis board of public welfare. The Ulrich bookshops in Minneapolis, Duluth and Rochester had given her the high regard and friendship of many authors of renown. On one of her European visits, she collected for publication a series of essays by distinguished women writers of England. She was an appreciated writer for the Saturday Review of Literature. She supervised and contributed editorially to the comprehensive volume Guide to Minnesota. She had an unfailing sense of the fitness of things, a refreshing objectivity and detection of life's little ironies. Dr. Ulrich is survived by her husband, Dr. Henry L. Ulrich, professor emeritus of medicine at University of Minnesota, and two daughters, Mrs. James Wise of New York and Mrs. Charles Spoerl of West Hartford, Connecticut.

## Necrology

Dr. William L. Freeman, 65, St. Cloud, Minnesota, died July 18 after a long illness. He received his degree in medicine at Rush Medical school and came to St. Cloud in 1924 to become associated with the Lewis Stangl clinic. At one time he was present of the veterans' facility of the St. Cloud hospital.

Lt. Earl M. Anderson, 28, Minneapolis, who died in July, was a graduate of the University of Minnesota Medical school in 1941. He was an intern at Minneapolis General hospital, and a fellow in surgery at Mayo clinic, Rochester. He entered the service in 1942.

Dr. Gilbert Leslie Gosslee, 68, Moorhead, Minnesota, died July 14 at a Fargo, North Dakota, hospital after an illness of several months' duration. He graduated from Hamline university and studied at Vienna. He served as health officer of Moorhead for several years and was surgeon for the Northern Pacific railway. During World War I he was a captain in the medical corps.

Dr. Charles J. Lavery, 78, Aberdeen, South Dakota, pioneer physician, surgeon and newspaperman and a resident of Aberdeen for the last thirty-two years, died July 20 at St. Luke's hospital in Aberdeen. Dr. Lavery was born at Chateaugay, New York. His first residence in South Dakota was at Ft. Pierre where he at one time served as mayor and later published the journal Fair Play.

#### **NEWS ITEMS**

(Continued from page 348)

Dr. Sidney A. Cooney of Helena has been reappointed for another year county physician for Lewis and Clark county. Dr. Howard W. Bateman of Choteau will assist him in the care of the county's extreme northern area.

Dr. Harry E. Bank of Minneapolis, chief medical officer at the United States Veterans Facility at that city, on August 1 was promoted from major to lieutenant colonel. Col. Bank, a native of Minneapolis, is a graduate of the University of Minnesota medical school, class of 1916, and a veteran of World War I. He has been stationed at the veterans hospital at Ft. Snelling since its opening.

## Classified Advertisements

ASSISTANCE AVAILABLE

Aznoe's, established in 1896, has available a number of well trained physicians (diplomates of the specialty boards, industrial physicians and surgeons, general practitioners, psychiatrists, tuberculosis specialists and residents). For histories, write Ann Woodward, Aznoe's-Woodward Medical Personnel Bureau, 30 North Michigan Ave., Chicago 2, Ill.

FOR SALE

Medical outfit in southeast North Dakota, community of 2000 population. For particulars address Box 823, care of this office.

# MORE EFFECTIVE LOCAL CHEMOTHERAPY

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SULFATHIAZOLE GUM,

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One tablet of White's Sulfathiazole Gum chewed for one-half to one hour

- promptly provides a high salivary concentration of locally active (dissolved) sulfathiazole
- that is sustained throughout the chewing period in immediate contact with infected oropharyngeal mucosal surfaces,
  - yet even with maximal dosage, resulting blood levels of the drug remain so low as to be virtually negligible.

INDICATIONS: Local treatment of sulfonamide-susceptible infections of oropharyngeal areas; acute tonsillitis and pharyngitis; septie sore throat; infectious gingivitis and stomatitis; acute Vincent's disease.

DOSAGE: One tablet chewed for one-half to

one hour at intervals of one to four hours depending upon the severity of the condition. If preferred, several tablets—rather than a single tablet—may be chewed successively during each dosage period without significantly increasing the amount of sulfathiazole systemically absorbed.



Available in packages of 24 tablets, sanitaped, in slip-sleeve prescription boxes.

IMPORTANT: Please note that your patient requires your prescription to obtain this product from the pharmacist.

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## Advertisers' Announcements

#### "YOUR DOCTOR SPEAKS"

War-busy physicians who would like to interpret many medical developments to their patients but are prevented by the sheer lack of available time, will be interested in the broad new educational campaign created by The Upjohn Company and the subject of editorial treatment in Life magazine's issue of May 13. The campaign takes recent medical developments, often of life-saving value to the American public, and presents the facts simply and attractively. The effort is made to give information of immediate practical help, based on sound medical principles, and carrying a hopeful note.

Each message has been carefully checked by leading authorities of the particular field, not only for accuracy but also for the wisdom of the presentation of the facts to the consumer. Assistance in framing the messages and enthusiastic approval of the campaign have been expressed by medical leaders.

Throughout 1945, messages will appear on pneumonia, pregnancy, cancer, whooping cough, stomach ulcers, the menopause and other vital health subjects of immediate interest. They will say in simple language what the physician might tell his patients if he had the leisure to do so.

In each message, the physician is presented as authoritative, yet still a warm human being. He frankly asks for cooperation from his patient so that together they can vanquish disease. Many readers who may be remote from their accustomed family physician, will no longer feel so isolated when they recognize that all doctors are grouped together to bring the benefits of modern medical discoveries to all.

## MINNESOTAN PROMOTED IN SCHERING ORGANIZATION

In connection with the appointment of Dr. Jno. N. McDonnell to the newly created post of director of domestic sales and promotion, Schering Corporation of Bloomfield, N. J., announces the advancement of Herman W. Leitzow to assistant to Dr. McDonnell. Dr. McDonnell for the past four years has been head of research of the drugs branch of the WPB.

A native of Minnesota and a graduate of the state university, Mr. Leitzow engaged in retail drug practice for a number of years before joining the Schering staff. Schering offices are in downtown Bloomfield, and plants for the manufacture of endocrine and pharmaceutical preparations are in the industrial section of Bloomfield and at Union. N. I.

section of Bloomfield and at Union, N. J.

Mr. Geo. C. Straayer, manager of the company's professional service division and well known to physicians of the northwest for his years of service to Schering in this section will continue in that post and in addition will devote part of his time to the development of field operations for the company. He received his business and professional training in Michigan. He has been associated with Schering since 1939.

#### HIGH POTENCY VITAMIN B COMPLEX

Poly-B, the U. S. Vitamin Corporation's vitamin B complex available in capsule and syrup forms, represents substantially increased potency. Each capsule or each teaspoonful of syrup (5 cc.) affords Vitamin B<sub>1</sub> (thiamine hydrochloride) 3 mg.; Vitamin B<sub>2</sub> (G, riboflavin) 3 mg.; niacinamide (nicotinamide) 20 mg.; Vitamin B<sub>0</sub> (pyridoxine) 1 mg.; calcium pantothenate 3 mg., and small amounts of natural B complex from brewers' yeast extract and liver concentrate, two of the richest natural sources of Vitamin B complex. Parenteral Poly-B Special, for intravenous and intramuscular use, has not been overlooked in the potency elevation of its vitamins B<sub>1</sub>, B<sub>2</sub>, B<sub>0</sub> and niacinamide content, and addition of calcium pantothenate.

Vi-Litron issued as capsules and syrup, is another U. S. Vitamin Corporation product which is today higher in potency for the treatment of secondary anemias, particularly those associated with nutritional deficiencies. Vi-Litron capsules combine a high concentration of the anti-secondary anemia fraction of liver with good potencies of ferrous sulfate, fortified with Vitamins C, B<sub>1</sub>, B<sub>2</sub>(G) and niacinamide. Vi-Litron syrup offers a similar formula containing iron peptonate, pantothenic

acid and Vitamin Bs.

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- Unaccountable pain and tension ... vasomotor disturbances... irregularity... mental depression—all contribute to the familiar menopausal picture. A picture that flickers—like firelight on a wall—interrupting many a woman's life program at its busiest.
- You have a dependable treatment for menopausal symptoms when you administer a dependable solution of estrogenic substances.
- For this delicate task, Solution of Estrogenic Substances, Smith-Dorsey, has won the confidence of many physicians. Smith-Dorsey Laboratories are fully equipped, carefully staffed, qualified to produce a medicinal of guaranteed purity and potency.
- With this product, you can help to steady many of those "fitful blazes."

SOLUTION OF

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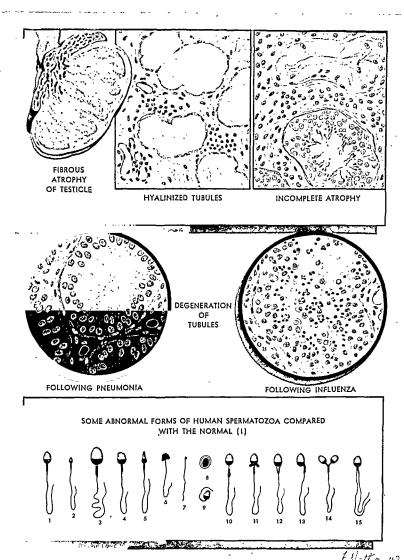
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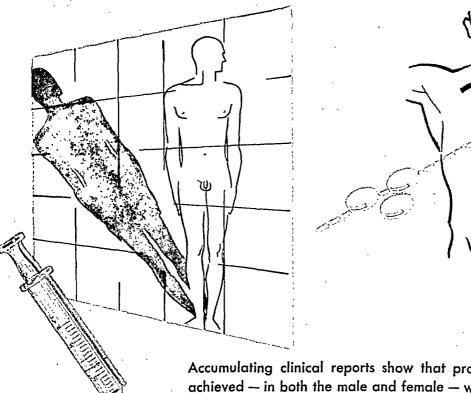
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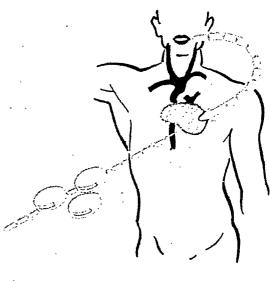




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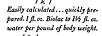
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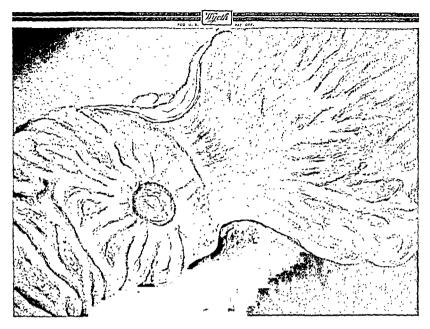
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#### against peptic ulcer recurrence

In view of the tendency of peptic ulcer to recur in the spring and autumn, many clinicians return their patients to full ulcer therapy—diet, rest, antacids—from the middle of September through October and from the beginning of March through the middle of April. • Amphojel provides safe, dependable antacid medication admirably suited to offset episodes of hyperacidity. It inactivates gastric secretions without alkalinization, mildly and efficiently. Supplied in 12-fluidounce bottles.







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A STIMULATING, REFRESHING LIQUID CREAM FOR MASSAGE AND MUSCLE MANIPULATION



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Designed to meet a physiological requirement, LOBANA "Ulmer" is a new, scientific preparation. It fulfills an urgent need for prophylaxis in cases where patients are exposed to infectious skin conditions and has proved to be especially valuable in the prevention of Impetigo in infants. LOBANA "Ulmer" is also effective for routine use in preventing bed sores and is recommended for application before Ultra-Violet and Infra-Red treatments.

#### HIGHLY EFFECTIVE

Antiseptic, protective and soothing, LOBANA "Ulmer" is ideal for hospital use. It cools . . . soothes . . . . protects . . . . and aids in healing the skin. Its use leaves the skin soft, refreshed and invigorated.

#### PLEASANT TO USE

This smooth, white lotion is of such a consistency that it may be applied and completely rubbed into even the most tender and sensitive skin surfaces.

Similar lotions designed for this purpose often have so much "pull" that application is painful and unpleasant. LOBANA "Ulmer" is far superior to rubbing alcohol, which dries the skin and removes the oil essential to a healthy skin. Nurses prefer LOBANA "Ulmer" to alcohol because it leaves their hands nice and smooth. Moreover, it does not have the common chilling effect of alcohol when used after the bath.

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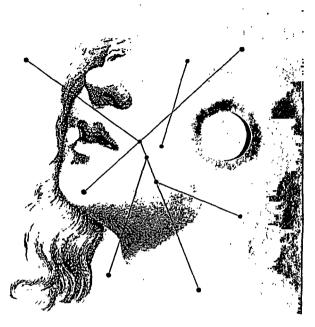
LOBANA "Ulmer" is unusually economical. One pint easily replaces four times the amount of rubbing alcohol. You will be very well pleased with your patients' satisfaction and pleasant reaction to this valuable new hospital aid. Available in 8 oz. and gallon bottles.

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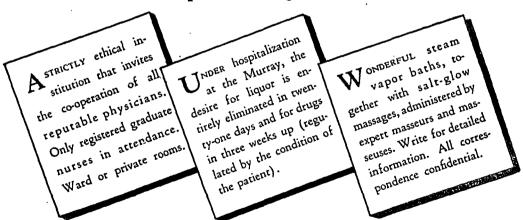


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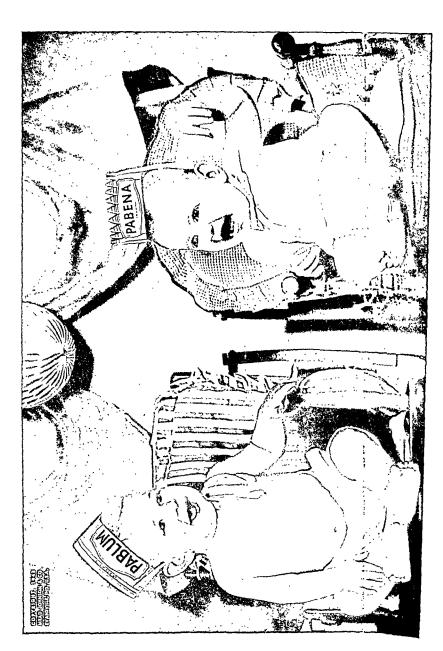
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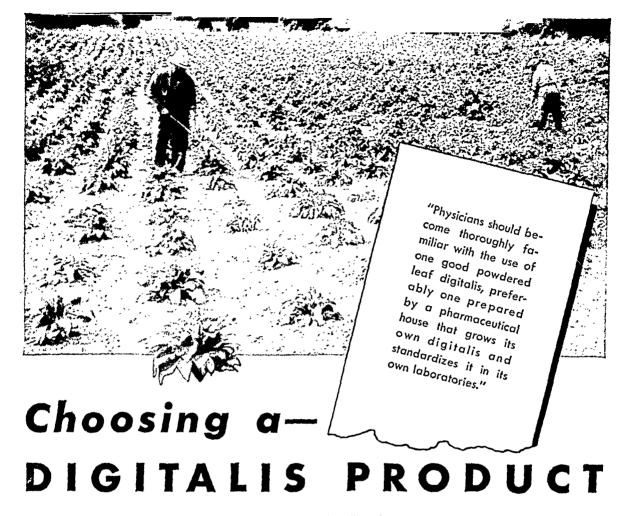


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1. Herrmann, G. R.; Decherd, G. M. Jr., and McKinley, W. F.; Digitalis Poisoning, J.A.M.A. 126:760 (Nov. 18) 1944.

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#### October, 1945

Thyrotoxicosis, Harry O. Drew, M.D.	_ 351
Medical Leadership in Public Health, Calvin C. Applewhite, M.D.	355
The Problem of Deformity in Poliomyelitis, J. Albert Key, M.D.	. 358
MEET OUR CONTRIBUTORS	. 359
BOOK REVIEWS	
Transactions of Montana State Medical Association, Sixty-seventh Annual Session Meeting of the Council	360 . 361
Meeting of the House of Delegates; Report of Secretary  Reports of Committees	362
Banquet Address of President, J. C. Shields, M.D.	. 363
Acceptance Remarks of President-elect. S. A. Cooney, M.D.	. 368
Montana State Medical Association District Roster	369
Alphabetical Roster of Montana State Medical Association Women's Auxiliary to the Montana State Medical Association	371 . <b>37</b> 3
EDITORIALS	
The Medical "Correlator"	374
College Health Service	275
Medical Art Show In Memoriam: Dr. Mabel S. Ulrich—E. L. Tuohy, N.D.	375
MINNESOTA STATE BOARD OF MEDICAL EXAMINERS, List of Physicians Licensed July 13, 1945NEWS ITEMS	376 378
NECROLOGY	378
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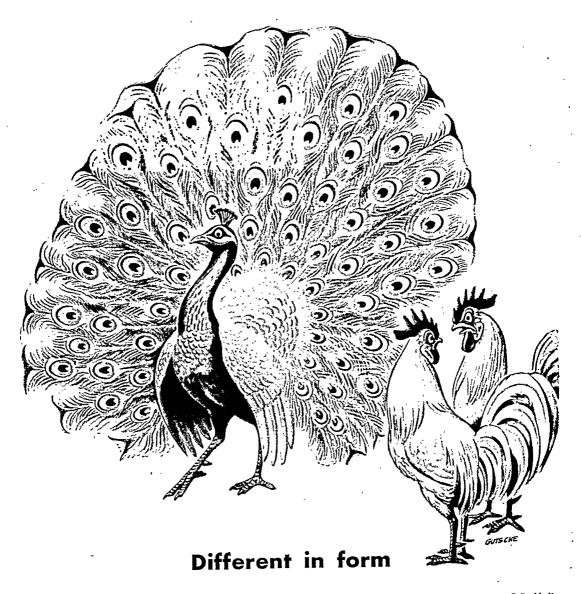
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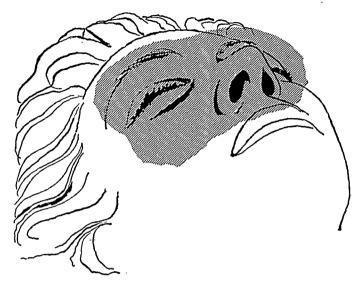
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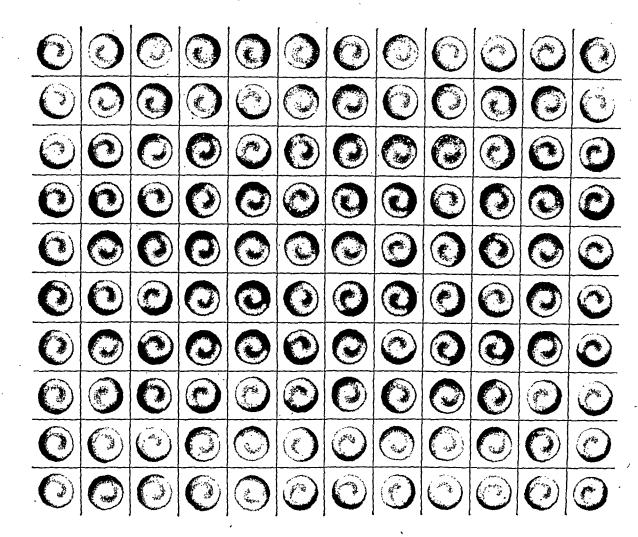
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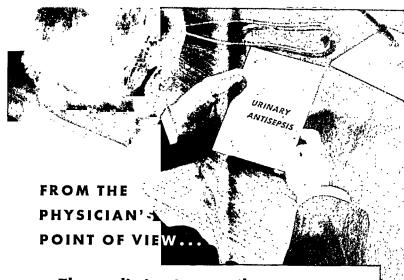
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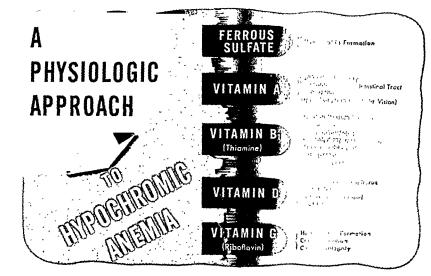
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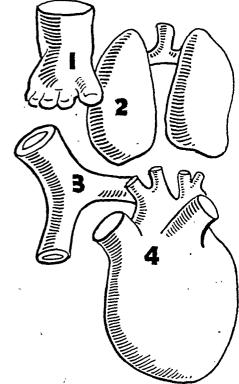
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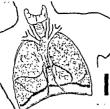
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\*Stainsby, W. J.; Foss, H. L., and Drumheller, J. F.: Clinical Experiences with Penicillin, Pennsylvania M. J. 48:119 (Nov.) 1944.

McBryde, A.: Hemolytic Staphylococcus Pneumonia in Early Infancy; Response to Penicillin Therapy, Am. J. Dis. Child. 68:271 (Oct.) 1944. Stainsby, W. J., Chairman, Commission for the Study of Pneumonia Control of the Medical Society of the State of Pennsylvania: Up-to-Date Facts on Pneumonia, Pennsylvania M. J. 48:266 (Dec.) 1944.

Larsen, N.P.: Observations with Penicillin, Hawaii M.J. 3:272 (July-Aug.) 1944.

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> - Editorial: Naval Med. Bulletin, (April) 1945, p. 862.

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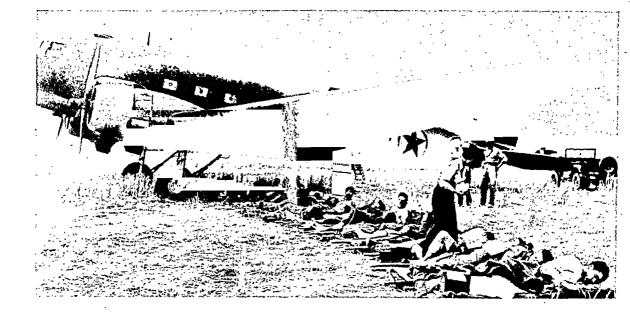
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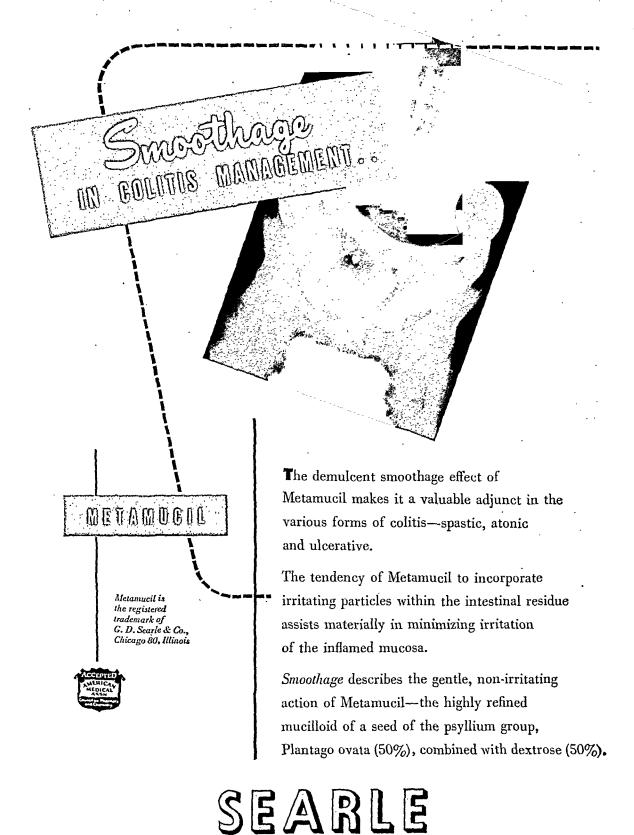
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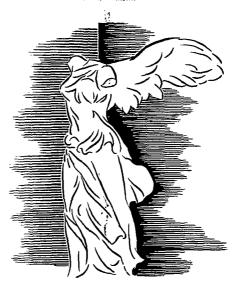
TREE NOCES, M. M., PLE PER MOCOULY OF THE UTERCA, NEW YORK
PAUL B. POLLING. 1939. P. 350.



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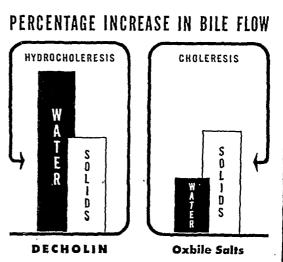
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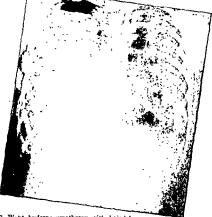
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### Thyrotoxicosis\*

Harry O. Drew, M.D. Billings, Montana

URING the sixteenth and seventeenth centuries the Italian and Dutch artists began to depict the human face and form as they saw it and not according to classical tradition. In other words the artist reproduced what he saw. In the art works of this period are many pieces showing recognizable diseased conditions. Recently in one collection of works of this period I saw two unmistakable examples of exophthalmic goiter. One was a marble statue of the head and shoulders of a young woman done by a Florentine artist in 1660. It showed widely staring eyes and a distinct tumor mass on the neck. The other was a painting of a young woman of the French court during the time of Louis XIV. There was pronounced exophthalmos and a distinct goiter was on the neck.

When we recall that the first medical record of this condition was the description given by Party in 1786 in which he described five cases of heart disease with an enlarged thyroid gland and protrusion of the eyes, and the next description was by Graves in 1835, we wonder why it was not described before. The artists were depicting the condition nearly two hundred years before these dates.

There seem to have been nearly as many classifications of gotters as of the nephritides. The principal concern clinically is whether the patient has hyper or hypothyroidism. The terms applied to various enlargements of the thyroid gland as hyperplastic, toxic nodular, nontoxic nodular, exophthalmic or adenomatous goiter are all descriptive of various phases of the same pathological processes. Aside from purely physiological hypertrophy which results from a temporary over-activity of the

\*Read at a meeting of the Billings Clinical association, April 20, 1945.

gland, these various phases of glandular growth are due to hyperplasia and hypertrophy followed by involution. The areas of involution undergo various degenerations and give rise to uneven and nodular masses palpable on the surface of the gland. They may occur in any lobule and at times are indistinguishable from cancer. These areas of involution may cause pressure symptoms, but their ability to cause toxic symptoms is doubted. They seem to be burned out areas of hyperplasia and are evidence of past over-activity in the gland. If such a gland its giving evidence of hyperactivity it is coming from some area of hyperplasia or hypertrophy.

The classical symptoms of thyrotoxicosis-rapid heart, nervousness, tremor and an elevated metabolism in the presence of an enlarged thyroid gland—are easily recognized. One of the outstanding symptoms of some cases is the effect on the eyes. Bram claims that from 60 to 85 per cent of all cases of thyrotoxicosis will develop some type of exophthalmos.4 Thompson says that puffiness of the eye-lids is as diagnostic as exophthalmos.24 When eye symptoms accompany the symptoms of hyperthyroidism we call the condition Graves' disease. Means points out that to call the disease exophthalmic goiter is a misnomer because there may be no exophthalmos present, or if it is present there may be no goiter; toxic goiter will not do because they are not always toxic. As the etiology is not definitely known, he thinks Graves' disease should be used.9

The symptoms alone may be misleading. In these days of the war neuroses and intense worries over loved ones on the battle fronts of the world, it is not surprising to see many of the symptoms of hyperthytoidism if we are looking for them. Eppinger and Hess pointed out in 1915 "the possibility must be advanced that certain ques-

tionable and atypical forms of thyroid disease may in reality be vagotonia." Again, we may be dealing with one of the milder psychoses. Bateman has recently pointed out the similarity between schizophrenic types and thyroid disease.<sup>12</sup>

Recent advances in knowledge of thyroid physiology have given us some plausible explanations of Graves' disease as well as some leads in the problem of endemic goiter. The discovery that thiocyanate medication in hypertension would cause enlargement of the thyroid and that many sulphur-containing drugs would affect thyroid secretion as well as the metabolic rate, has caused a flurry of investigation of the whole subject of thyroid physiology.

For many years thyrotoxicosis was looked upon as purely a diseased condition of the thyroid gland in which an over-secretion of thyroid hormone gave us all the symptoms. The answer seemed easy. Remove the greater portion of the gland and the supply of hormone is cut off and the patient becomes normal again. As we learn more about this strange disease which causes the reactions of and in every way simulates intense fear, we see, as in many other disease complexes, that the answer is not simple.

It has been long thought that the onset of hyperthyroidism was due to direct nervous stimulation of the thyroid gland. As Bram and many others have pointed out, many cases give a history of some intense emotional stress before the symptoms develop.4 After the work of Friedgood and Canon, in which they developed all the symptoms of exophthalmic goiter in laboratory animals by anastomosing the phrenic nerve with the cervical sympathetic, it looked as if nervous stimulation of the autonomic system was a major factor in the disease. Also, bilateral cervical sympathectomy will cause a lowering of the metabolic rate in animals. However, when we consider that the thalamus controls the autonomic system, this reaction means that with a portion of central control cut off, the overstimulated autonomic quiets down. While we unquestionably have nervous control of the thyroid gland, it is indirect and humoral by way of the "pituitary-thyroid axis," as it is called by Salter.

When we look at the activity produced in the organism by thyroxin we find that it is manifold. Besides stimulating metabolism of the body tissues which include oxidation and the activity of enzymes in the cell, Means points out that it acts on the "distribution and exchange of water, salts, and colloids of the body, upon hepatic glycogen stores (which are depleted under an excess of hormone), upon circulation (which is accelerated), upon the nervous system (which is rendered more irritable), and others."3 However, in thyrotoxicosis, there are a number of other conditions which an over-secretion of hormone does not explain. Williams and Kendall have shown that thyroxin activity is intimately bound up with the amount of thiamine in the diet.6 In the presence of thiamine deficiency large doses of thyroid extract have very little effect on basal metabolism. When this deficiency was remedied, the usual increase in basal metabolism was obtained. The enlargement of the thyroid gland or the goiter itself and the exophthalmos seems to be traceable to the activity of the thyrotropic hormone of the pituitary.

The internal secretion elaborated by the thyroid is intimately bound up with iodine metabolism. This secretion of the gland is a complex chemical consisting of globulin and iodine in varying combinations. It exists in the gland as thyro-globulin. The thyroglobulin in the presence of inorganic iodine breaks down into diiodotyrosine and thyroxin probably by the action of an enzyme.<sup>2,3</sup> These are both found in the circulating blood in combination with other proteins, and thyroglobulin is not. Thyroglobulin, thyroxin, and diiodotyrosine have at various times been considered as the active hormone. However, diiodotyrosine has been shown to be physiologically inactive and is an intermediate product between thyroglobulin and thyroxin.

Delicate assay methods have been perfected by which the various iodine fractions in the blood can be determined.<sup>3</sup> By these methods it has been shown that the total iodine fractions in the blood normally vary from 5 to 15 micrograms per hundred cc. of blood. In hypothyroidism the values are 2 to 5 micrograms, while in hyperthyroidism they may be as high as 110 micrograms. Normally the iodine fractions are equally divided between free iodine, diiodotyrosine and thyroxin. In hyperthyroidism the thyroxin fraction is greatly increased. To date these assay methods have not been sufficiently simplified to be of practical clinical use.<sup>2</sup> When they are, they will prove more accurate than the basal metabolism test.

Thyroxin is looked on as the active hormone of the thyroid. Very recently it has been found that this hormone can be very easily made in the laboratory by incubating blood proteins, egg albumen, or casein with iodine. It has been found to be one of the easiest hormones to synthesize. The iodo-casein so formed has been found to be much more active than thyroglobulin, and when hydrolized yields a substance eighty times more active than an equal weight of dried thyroid gland. As Soskins points out, with the ease with which thyroxin can be synthesized, it becomes evident that it can be made by tissues of the body outside of the thyroid gland because the administration of inorganic iodine will raise the basal metabolic rate of thyroidectomized animals and myxedematous humans.<sup>2,5</sup>

By the use of radio-active iodine it has been found that the thyroid gland accumulates iodine eighty times faster than the rest of the body tissues, showing that there is a selective activity that the rest of the body lacks. In hyperplastic glands the selective rate may be from three to four hundred times greater than that of other body tissues.<sup>3</sup>

Reineke and his co-workers have shown that the progressive iodinization of casein produces compounds with progressively greater thyroid activity. This holds true until the iodine content reaches 7 per cent. After this figure the thyroid activity of the compounds was progressively reduced. If this holds true in the body, this may be the reason for the paradox of reducing metabolism by the flooding of the system with iodine in the presence of hyperthyroidism. It could also explain why

October, 1945

in some cases of colloid goiter with low basal metabolic rate, the administration of iodine can cause an exacerba-

tion of hyperthyroidism.

The effect of the pituitary gland on the thyroid was suspected for a long time because of some of the changes caused by pituitary disease. In recent years with development of processes whereby the thyrotropic substance can be separated from the gonadotropic, adrenotropic and the growth-promoting factors of the anterior pituitary extract, much has been learned of its activities. This thyroid stimulating substance or TSH as it is called has been found to be a protein and has not been synthesized. It is eliminated in the urine and by processes of bioassays the amount can be determined.

When TSH is administered parenterally it causes marked activity of the thyroid epithelium and a discharge of the colloid from the follicles with all the evidences of increased thyroxin activity including an elevation of the metabolic rate. In 1936, when Hertz and Oastler found TSH in urines of myxedematous patients and none in normal or thyrotoxic individuals it seemed paradoxical." However, Rawson was able to show that it does occur in the urine of both normal and thyrotoxic individuals, but in an inactivated form. Heating reactivates it and it was found to occur in amounts proportional to the amount of thyroid activity. When TSH is brought into contact with thyroid tissue in the test tube, it is found that thyrotoxic tissue has a greater power to inactivate it than normal tissue and that tissue from a non-toxic nodular goiter apparently has no effect on it.9 The inactivation of TSH seems to be an oxidation due to enzymic activity of the thyroid cell and not due to the action of thyroxin. In other words it is not a question of one hormone neutralizing another. The direct effect of TSH on the thyroid gland seems to be the same as the effect of the thyroid hormone on the body cells. In the presence of an over-production of TSH there results a hyperplasia of the thyroid and an overproduction of thyroid hormone.

Under normal conditions there seems to be a balance between the pituitary and the thyroid gland. Under-activity of the thyroid from any cause seems to stimulate the pituitary to produce more TSH and over-activity of the thyroid seems to depress the production of TSH. There seems to be an over-production of TSH as well as thyroxin in thyrotoxicosis. Does this mean that the pituitary-thyroid axis has become unbalanced from the pituitary end? Means says there is no evidence pathologically . of hyperplasia of the pituitary gland found in Graves' disease.9 However, from the work of Rawson and others, there is definite evidence of an increased excretion of TSH found in the urine of thyrotoxic patients. If the primary cause is over-stimulation of the pituitary, we must explain where such a stimulus could come from. Here we may recall the direct connection between the pituitary and both the autonomic and central nervous systems, with the hypothalamus by way of the pars nervosa. This could also explain the connection with the history so often obtained of emotional stress before the disease develops. We cannot overlook this fact in spite of such statements as "Certainly the disease is not psychogenic in origin" and "it is a chemical disturbance. Psychiatrists have developed a great variety of peculiar explanations for many diseased states. After reading some of these explanations one is almost forced to the conclusion that they belong in the realm of stargazing," 20

Since the development of a fairly pure extract of TSH, several interesting things have been explained. In Not only is it possible to develop typical Graves' disease in laboratory animals, but that unexplained and mysterious eye condition of exophthalmia could be developed. This condition could be more easily produced in thyroid-ectomized animals than in normal ones. Apparently TSH has a selective action on the contents of the orbit and this seems to explain why the exophthalmia is either unchanged or made worse in some cases of Graves' disease after thyroidectomy. It probably is the explanation of those cases reported in the literature, of hypothyroidism to whom thyroid extract has been given, and who develop marked exophthalmos. 10

Some of the accompanying symptoms of Graves' disease have been explained by some investigators as due to vitamin deficiencies. Soskin and Levine have produced a chart listing many of these symptoms and their relationship to various vitamin factors.<sup>2</sup> They list central nervous system effects as tremor, etc., as due to thyroxin activity in the presence of vitamin B deficiency, creatinurea as due to thyroxin in the presence of vitamin C deficiency, loss of calcium due to thyroxin and vitamin D deficiency, muscular weakness as due to vitamin B deficiency, etc. It seems very likely that this may all be relative, due to the increased demands for food in the presence of the elevated metabolism, and caused by excessive thyroxin.

In the last three years investigations of the activities of the thiocyanates, sulfonamides, thio-urea, and thiouricil on the thyroid gland has brought out many interesting things pertaining to its physiology. These substances will all cause hyperplasia of the gland and a reduction of metabolism. Apparently the hyperplasia is due to the stimulation of the pituitary gland.<sup>13</sup> The increased amount of TSH demands more thyroxin, the available supply is exhausted and in the attempt to make more, the hyperplasia develops. The thiocyanates seem to block the formation of thyroxin within the gland unless in the presence of an excess of iodine. If either todine or thyroid extract is given with these drugs, the reduction of metabolism and the hyperplasia does not develop.3 With the sulfonamides, thio-urea and thiouracil, the giving of iodine has no effect either on the hyperplasia or the metabolism; the administration of thyroid extract with these drugs will prevent these changes, showing that they block the synthesis of thyroxin at a different point. Means has likened the activity of the thyroid gland to an assembly line turning out thyroxin and these sulfur-containing substances cause "bottlenecks" at different places within the gland. The hyperplasia of the gland is caused by a demand upon it which it cannot meet and we get a hyperplasia of frustration. Metabolism is reduced because of the exhaustion of the available supply of thyroxin.3,13 When the amount of thyroxin is either exhausted or very low the TSH is not inactivated and exophthalmos may develop. 14 When radio-active iodine is given to patients in which thio-uracil has produced the above results it has been found to be excreted in very large amounts, showing the inability of the gland to utilize it.13 The goitrogenic effect of these substances could not be obtained in hypophysectomized rats as reported by the MacKenzies and by Astwood.13

After it had been definitely proven that basal metabolism could be reduced and the symptoms of hyperthyroidism controlled in laboratory animals, it was a natural step to use some of these substances as therapeutic agents in thyrotoxicosis in man. Thio-urea was chosen because it was found to be quite nontoxic in animals. Astwood reported a few cases in 1942 and it was found that when continued over a period of several weeks improvement in all of the symptoms occurred. When other closely allied substances were investigated it was found that thio-uracil was much more active and the by-effects of nausea and disagreeable breath were not obtained. When Astwood reported his results of the use of thiouracil in 1943, he warned of the danger of toxic reactions from the use of this drug.16 Since that time there have been many reports from competent observers and this warning has been amply justified. Several deaths from agranulocytosis have been reported.17 The usual toxic reactions which have been reported are nausea, jaundice, dermatitis, edema, swelling of the salivary glands, elevated serum chlorides, fever, leucopenia and agranulocytosis.16 In some series of cases reported the percentage of reactions seems quite high. Gabrilove and Kert report they had serious reactions in three of nine cases treated. There is evidence that thio-uracil passes through the placenta and can cause changes in the fetus. Williams reports such changes in rats born to females that had been fed thio-uracil.21 They were of small size and had developed goiters. Eaton reports the case of a mother who had been treated with the drug for thyrotoxicosis until shortly before delivery and who gave birth to a child with an enlarged thyroid gland.22 Many of these toxic reactions can be avoided by the use of smaller doses and by the use of a combination of the drug with iodine or thyroid extract.  $^{22,23,25}$ 

In spite of the toxic reactions so frequently reported with thio-uracil (Williams says 10 per cent),23 it is being hailed as a boon to patients who have a mild degree of thyrotoxicosis or who are poor operative risks. Probably some substance closely allied to thio-uracil will be found which will not give such a high degree of reactions. 15,23 While the drug seems to be more efficient in controlling the symptoms of thyrotoxicosis than iodine, its effect on the gland itself has been a cause of concern. A large percentage of the glands become larger, more vascular and there is a lymphocytic infiltration. 13,23 (This condition as described bears some resemblance to struma lymphomatosis or Hashimoto's disease. While true Hashimoto's disease or Reidel's struma with its board-like hardness is seldom encountered, it is not uncommon for the pathologist to report a chronic thyroiditis with lymphocytic infiltration. These are hyperplastic glands from patients who have been intensely treated with Lugol's solution. Thio-uracil may not be the only substance which causes lymphocytic infiltration of the thyroid.) These changes can be somewhat overcome by giving iodine with the drug. 20,23,25 Those who have used the drug as a preoperative treatment seem to think the postoperative course is more comfortable and that the period of hospitalization is shorter. 13,20,22,23,25 As would be expected, the effect of thio-uracil on the exophthalmos is the same as with other forms of treatment. In the milder cases there is improvement, in the malignant type they get worse.23

The great fault found with surgery as a treatment of thyrotoxicosis is that it is purely symptomatic and does not cure the underlying cause of the disease. This is readily admitted by all surgeons. However, this new medical treatment with thio-uracil seems to have the same fault. It blocks the formation of thyroxin and the symptoms only are brought under control. Surgery does so quickly, with a risk in good hands of a mortality under one per cent. Treatment with thio-uracil with toxic reactions running as high as ten per cent and the development of agranulocytosis as high as one per cent, certainly is not devoid of danger.

All of the new advances made in the physiology of the thyroid gland tend to show more and more that the cause of thyroid hyperactivity is controlled by the thyrotropic hormone of the pituitary. There seems to be every reason to believe that the pituitary is under control of the central nervous system by way of the hypothalamus. Until we have some means of controlling the impacts of emotional stresses on the brain, we will have to continue to treat Graves' disease symptomatically. Means very aptly says, "According to the nature of our constitutions one of us may fail to adjust to his environment in his endocrine system and develop Graves' disease, another in his gastro-intestinal tract and develop an ulcer, yet a third in his circulatory system and develop irritable heart or effort syndrome." 9

What about thiocyanate goiter? Here we have an enlarged thyroid gland which develops because the synthesis of thyroxin is interfered with. It can be prevented by the use of iodine and the enlargement of the gland seems to be caused by a lack of a normal amount of iodine reaching the thyroxin stage. Could not some such mechanism be at work in endemic goiters, which can be controlled by the administration of iodine? The metabolism of some food factors may be the cause of some . such change taking place as happens when the thiocyanates are given as medication. It seems to me that there is a close analogy between these two types of goiters.

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### Medical Leadership in Public Health\*

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THE responsibility of safeguarding the health of the people residing within a state devolves primarily upon the health department of that state. The health department which discharges this responsibility fully must have at all times the enthusiastic support of the people served. Since the executive officers of the state health departments are members of the medical profession, organized medicine should always give enthusiastic support to the state health department's program. If it is the responsibility of the state health department to safeguard the health of the people, why then should the U.S. Public Health Service be interested in local health service? There are two reasons for this.

First, national defense is a definite responsibility of the federal government. Safeguarding the health of the civilian population in time of war is regarded as a definite and integral part of a national defense program. Hence, the federal government, through the U. S. Public Health Service, is discharging its legal responsibility in this field.

Second, by an act of Congress, the U. S. Public Health Service is charged with the responsibility of preventing the interstate spread of disease. Manifestly, it would be folly for the Public Health Service to throw a cordon of officers around each state for the purpose of preventing the spread of diseases from one state to another. For more than 25 years, the Public Health Service, in cooperation with the various state health departments, has endeavored to determine how best to prevent the interstate spread of diseases. After years of trial and experimentation, it has been definitely determined that the best method of preventing the interstate spread of disease lies in controlling a disease at its source. To achieve this result, local public health machinery is needed. Through years of cooperative effort it has been found that the agency par excellence for achieving this result is the local health department, manned by welltrained and experienced personnel who devote their entire time to the task of preventing disease and to the promotion of sound health programs. As a result of the co-

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operative federal-state health services in many of the states, Title VI of the Social Security Act was passed in 1935, and funds thereunder were made available for cooperative health work in 1936. At long last, the Public Health Service is in a position to pay the local health department for rendering invaluable service in the matter of preventing the interstate spread of disease. As a result of the passage of the Social Security Act, there has been a phenomenal expansion in certain areas of the United States of full-time local health services. In 1942 the people of 1,828 out of 3,070 counties were enjoying the benefits of some type of full-time local health service. The need for further expansion becomes acutely apparent when the broad public health needs of this country are taken into consideration.

Improvements in the field of public health during the past quarter of a century have been little short of miraculous. These results have been accomplished with rather poorly organized and improperly integrated public health services. As a result of organized community action, typhoid fever, iliocolitis, diphtheria and whooping cough have, for all practical purposes, been eliminated as major public health problems. Great progress has been made by organized effort toward reducing the morbidity and mortality rates from tuberculosis. With recently developed methods of case-finding, and expected improvement in treatment facilities and technics, this disease should within the not distant future cease to be a major public health problem. Pneumonia, the captain of the men of death, bids fair to yield its death-dealing hold on the human family, as a result of the march of science, with its chemical weapons of action. Recent discoveries of methods of treatment of the venereal diseases offer a very favorable prognosis for early control of these diseases. Recent statistics released by the Bureau of the Census show that the general death rate for the United States for the year 1942 reached a new low of 10.3, and that the infant and maternal death rates for the same year were the lowest in history. All these results have been accomplished by organized community effort, fostered and promoted by public health agencies, both official and unofficial, and participated in very actively by

members of the organized medical and allied professions. It may be stated parenthetically that any public health program, to be eminently successful, must be actively supported by the medical and allied professions.

Lest this brief review of the success which has been achieved during the past few years should generate a feeling of self-satisfaction and complacency, attention is here directed to some problems of public health which clamor for solution. The physical unfitness of the men called to active duty under the Selective Service Act of World War Number Two should cause all of us who are interested in the advancement of medical science a definite sense of humiliation. Forty-six per cent of the first two million men examined under this draft were labeled unfit for military service. To be sure, the physical standards in the beginning were rather high. Yet, with the lowering of the standards, more than one-third of the men between twenty and thirty-eight were declared physically unfit. A detailed study of the causes of rejection reveals the fact that a large percentage of these rejectees would have been physically fit if they had availed themselves of the scientific services which the medical profession was capable of supplying. For a number of years the medical profession has been warned that a large proportion of the people did not get proper medical care. For years it has been known that eyes, teeth, venereal diseases, and mental hygiene were subject to serious neglect. Propaganda from high places has lulled to sleep the medical profession by the assurance that the American people are the healthiest people on earth and that medical service of the best grade in the world was available to them. The revelation of the draft indicates how adroit the deception has been. It is evident that there has been a terrific lag between scientific medical discoveries and the practical application of those discoveries to the people at large. Several factors may be responsible for this lag.

In the first place, it may be due to the fact that the general public has not been thoroughly informed relative to the advantages to be derived from the practical application of these discoveries. It is the function of any well-organized health department to acquaint the general public with the scientific public health facts in such a manner that practical application will be made of the information thus obtained. The personnel of the health department should function as a liaison agent between the general public and the medical and allied professions. The state and local health departments may be responsible for a considerable amount of this lag.

Another factor which may have contributed to this lag may be the failure of some members of the medical profession to keep abreast of the serious need and to supply the general public with the services required. The rapid growth of medical knowledge and the general competence of the profession has made it natural for the people to look to physicians for advice with respect to the prevention and cure of their ills. This same rapid accumulation of medical knowledge also makes it impossible for one physician to master the entire field. For this reason, the practice of group medicine, where the patient may have the advantage of several types of serv-

ices, should become increasingly popular with the general public.

Still another factor, and probably one of the chief factors in the causation of this lag, is the lack of funds with which to pay for reasonably adequate service. The committee on the cost of medical care, in a survey in 1929, the peak year of prosperity, found that 59.5 per cent of the families had an annual income below \$2,000. The National Health Survey, made in 1936, has shown that in the United States there are forty million people in families having a total annual income of less than \$800. Among this group it was found that almost eight million cases of illnesses were receiving inadequate care, and that approximately two million of these most serious illnesses received no medical care at all. From these family income figures, it can readily be seen that in approximately one-third of the population one case of catastrophic illness would be sufficient to throw a member of this class into the relief group. It is manifestly impossible for the medical profession to assume the responsibility for caring for this terrific illness load without any thought of remuneration. How definitely to solve this problem in an American way is a task which confronts the medical profession, as well as the statesmen. The mere fact that medical societies are now discussing and experimenting with various plans for delivering medical care to those in the low income group indicates that the leaders in that profession are giving serious consideration to this problem and augurs well for its final satisfactory solution.

In promoting the establishment of reasonably adequate full-time local health departments, either county or district, one often meets with the rather hackneyed statement in certain areas of the United States that, "This is the entering wedge to State medicine." This statement is still being made, in spite of the fact that the American Medical Association has gone on record in favor of this procedure. On June 10, 1942, the House of Delegates of the American Medical Association unanimously voted its approval of the extension of this type of service. There was published in the Journal of the American Medical Association, April 3, 1943, a lengthy editorial advocating enthusiastically the expansion of full-time local health services throughout the length and breadth of the United States. The closing paragraph of this editorial reads as follows: "The career of public health as a specialty of medicine requiring graduate university training and practical experience is so far accepted as a part of the pattern of preventive medicine that the survival of the part-time general practitioner as the local administrator of a health department cannot be encouraged by the medical profession or be recommended to the taxpayer as the best his money can buy in public health."

Attention is here called to the fact that in two states (Alabama and South Carolina) the state medical association has been designated by law as a state board of health. It is of interest to note that at the outbreak of the present war the people of all the counties in both states were enjoying the benefits of whole-time local health service. The medical associations in both states have led constructively in the field of public health, and

October, 1945 · 357

the people have gladly followed that leadership. Should state medicine develop in the future, it is felt that organized medicine in those states will be in a position to assume direct leadership in that field, since it has already demonstrated its ability to lead constructively in one important field. In such an event, what will be the status of organized medicine in those states where this ability for leadership has not been tried and demonstrated?

It is seriously recommended that the organized medical profession of this state take definite steps now, in cooperation with your state health officer, to develop plans of organization for the complete coverage, as soon as competent personnel can be obtained, of this state, with full-time cooperative local health services.

In perfecting such an organization, certain basic principles should be borne in mind:

- 1. Local health departments should be limited to a population group of 25,000 or more, preferably 50,000. In this state, to obtain this population, it will be necessary in many instances to combine two or more counties into a district.
- Local financial participation must be obtained.
   Pride of ownership must be constantly stressed for the successful operation of local health service on the basis of that eternal verity that "Where your treasure is, there will your heart be also."
- 3. A sane and constructive public health program must be designed and proposed. The main items of such a program should embrace public health education, control of communicable diseases, maternal, infant and school health services, mental and adult hygiene, and a broad program of environmental sanitation. Such a program should strive to accomplish the following results: (a) See that every home in the area over which the department has supervision has a safe water supply, a safe method of excreta disposal, and is effectively screened against flies and mosquitoes. (b) Insure a safe public water and milk supply and see that the public food vending establishments comply with accepted practices of sanitary procedure. (c) So conduct the maternal and infant health program that every expectant mother has adequate prenatal, obstetric and postnatal care; that every infant has modern scientific supervision through the first year of its life; and that every preschool child has that type of supervision which will insure that, by the time school age is reached, it will be free of all correctable physical defects, and protected against those diseases for which an immunization agent is available. As this is done, school health work will assume a minor role in the general health program. (d) Arrange for the participation in the program designed to rehabilitate returning soldiers. (e) Give serious consideration to the development of a constructive mental hygiene program, with a view of reducing the incidence of neuropsychiatric conditions. (f) Provide stimulation for a program designed to ascertain what can be done to reduce the mortality rates from the degenerative diseases.

To execute such a program, it becomes at once evident that full-time, well-trained personnel will be required. Can such a program be executed? Recently, there came to the desk of the writer a report of a county health department in one of the southern states for the year 1942. This county has a population of approximately 50,000, 77 per cent of which is colored. The budger for maintaining this department totals \$40,840, approximately 80 cents per capita. More than 50 per cent of these funds were derived from local sources. The staff consisted of one full-time physician as health officer, two inspectors, six public health nurses, one dental hygienier, one laboratory technician, two clerks, and one part-time veterinarian for meat inspection. The budget also provided an item for the payment of local physicians for services rendered in the public health program.

Any community where 77 per cent of the population is colored naturally presents formidable public health problems. What then, were the results accomplished in this county? All of the homes in every municipality in this county had been provided with a safe method of excreta disposal, either by means of water carriage systems or sanitary privies. Ninety-seven per cent of the school children of the county are provided with a safe method of excreta disposal; 81 per cent of the school children are served with a protected water supply; and 77 per cent with adequate hand-washing facilities. Eighty-nine per cent of the public milk supply in that county is pasteurized. The general death rate was 8.8, in comparison with a rate of 10.3 for the registration area of the United States. The maternal death rate and infant mortality rate, which are regarded as one of the most delicate indices of an effective public health program, are strikingly significant, particularly when it is realized that 88 per cent of all births in this county are delivered by midwives. The infant mortality rate was 35.9, and the maternal death rate was 2.9 per thousand live births. These rates are considerably lower than those of the registration area of the United States. Apparently, the health department has performed a Herculean task in teaching the midwives in that county the value of soap and water cleanliness and the dangers of needless meddling in cases of obstetrics. The achievements in this county can be duplicated anywhere in the United States, wherever there exists teamwork between the medical profession and the public health officials.

The organization and inauguration of a sane and sensible public health program on a state-wide basis is a task fraught with trials, tribulations, and terrific obstacles. Persistence, determination and intelligent leadership are essential requirements for ultimate success. To supply that leadership in this state constitutes a real challenge to the members of this association. It is hoped that the medical profession will accept this challenge and will be so persistent in its efforts that the result will be a public health organization and program of which the profession and the people of this state will be justly proud. During this organization period the crying need will be for real men, imbued with a spirit of loyalty to the best interest of scientific medicine, actuated by a determination to see that the task is effectively done in spite of all obstacles, absolutely immune to the seductive call of politics, and motivated by an insatiable desire to render efficient service to humanity.

## The Problem of Deformity in Poliomyelitis

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HE majority of individuals who survive an attack of acute poliomyelitis recover from the disease completely and this recovery is spontaneous. In these patients there is no residual paralysis and the stiffness subsides spontaneously and they do not require any special treatment. In the remainder the acute stage subsides, but the patient is left with a variable amount of flaccid paralysis of the voluntary muscles. Some of this paralysis is temporary and the muscles will regain part or all of their power if they are given a chance to do so, and some of it is permanent and will persist in spite of any known treatment.

In addition to the flaccid paralysis there is a variable amount of stiffness in the neck and back and certain muscles may be tender when pressed upon and painful when stretched. These tender, sensitive muscles tend to contract and may become permanently shortened unless this is prevented by appropriate treatment in the early stages of the disease.

The crippling caused by the disease is due partly to the flaccid paralysis and partly to deformities. These deformities are of three types: 1, shortening or contracture of the tender sensitive muscles; 2, deformities due to muscle imbalance and 3, deformities due to abnormal function.

The deformities due to muscle contracture occur early in the disease and, if unchecked, the involved muscles may become markedly and permanently shortened. The tendency to shorten persists as long as the muscles remain tender and sensitive. It is sometimes called muscle spasm and long has been considered a troublesome problem in the treatment of the disease. In fact, the period following the subsidence of the fever is known as the stage of tenderness and contracture. The tenderness is believed to be due to irritation of the posterior roots of the peripheral nerves and the contracture to a reflex immobilization of the part such as occurs in other painful conditions.

The tenderness and contracture of muscles is an important feature in a relatively small percentage of patients, but when noted it should be treated as early in the disease as possible. By this it is not meant that the sensitive muscles should be stretched manually several times a day, because it long has been known that injudicious handling of the patient may increase the tenderness and sensitiveness of the muscles and prolong this stage of the disease. It was for this reason that Lovett wrote that the "avoidance of meddlesome therapeutics" was the most important part of the treatment during this period.

The tenderness and contracture affect especially the muscles of the back, the hamstrings and the calf muscles (the dependent areas with the patient lying on his back). In most instances all that is necessary is to keep the patient lying on his back in a flat bed for much of the day in the physiological position with small pads under the

knees and a board at the foot of the bed to prevent foot drop. During part of the day he may be turned gently on his face and a small pillow placed under the lower legs. If spontaneous pain is troublesome it may be relieved by sedatives or by local heat, either dry or moist. The heat is used for its analgesic effect and, by relieving the pain, lessens the tendency of the muscles to contract.

If the above simple measures are not sufficient the involved extremity should be immobilized in the physiological position in a well padded splint or plaster-of-paris cast. This immobilization relieves the pain and tendency to contracture and, unless it is prolonged a great deal longer than necessary, does not damage permanently the joints or muscles of the extremity. In fact, it is still the most satisfactory and economical answer to the problem presented by the painful extremity which tends to be maintained in a position of deformity. The cast may be left in position for from two to four weeks and then bivalved and the extremity examined and if it is still tender it may be replaced, or the splint or bivalved cast may be removed daily and the joints of the extremity moved through the range which is tolerated without undue pain, but painful stretching of the muscles is avoided.

The stiffness in the neck and back subsides spontaneously if the patient is left alone and not maintained too long supine in the flat bed.

Thus it is evident that the paralyzed patient should emerge from the stage of tenderness and contracture in from three to eight (rarely more than eight) weeks with no deformities and ready to begin the attempts to restore power in the paralyzed muscles and to learn to use his muscles in the most advantageous manner.

The late deformities occur slowly over a period of years and are due partly to the pull of strong muscles which are not counteracted by their weak opponents and partly to the deformation of growing bones resulting from abnormal strains and pressure. Naturally they are most severe in the partly paralyzed extremities of young children, as their bones grow faster and have farther to go. The hands and feet are especially affected and while the deformity may be lessened and its progress delayed by suitable braces or shoes, it may not be possible to prevent it entirely by any means at our command, if he is permitted to use the extremity.

For instance, if in a small child the evertors of the foot are completely paralyzed and the invertors of the foot are strong, this child is going to develop an inversion deformity of this foot if he is permitted to walk on it, even with a correctly designed and fitted brace and shoe. It is obvious that that foot will eventually need surgery: either muscle transplants or stabilization, or both. It is my practice to use braces largely where they are necessary to permit or improve function and rarely to prevent deformity. The deformity can be corrected later by surgery and in the meantime the patient has hardened the

October, 1945

foot by use, its growth has approximated though not equalled the normal and he has led a relatively untrammelled existence over the intervening years.

It is obvious that the prevention and correction of the late deformities which develop during the growing period in patients who have been partially paralyzed by poliomyelitis, present individual problems which must be solved according to sound orthopedic principles. For tunately it is rarely indeed that a patient who survives the acute attack of the disease is so paralyzed that he cannot pursue a useful existence, and in good orthopedic

practice it is almost unknown for deformities to seriously cripple a patient who would otherwise be able to carry on.

Undoubtedly deformities do occur, but they can be corrected to such a degree that they do not seriously handicap the patient. In the last analysis it is the permanent paralysis caused by the destruction of the motor nerve cells in the spinal cord which is responsible for the severe crippling which poliomyelitis occasionally causes and no treatment now known has been shown to prevent or even to lessen the extent of this permanent paralysis,

#### ... MEET OUR CONTRIBUTORS

Dr. Harry O. Drew, Billings, Montana, after receiving two degrees from Creighton university, the latter in medicine in 1921, pursued his specialty, surgery, by additional study at the medical colleges of University of Nebraska, Harvard university and Minnesota. He has practiced at Billings for eight years, is the president-elect of his district medical society (Yellowstone Valley) and, in addition to state and national affiliation is a member of the Billings Clinical association.

Dr. Calvin C. Applewhite, whose medical degree was acquired at Vanderbilt university in 1913 and whose graduate activities were at Harvard university, is a member of the American Public Health association, the American Medical Association, Southern Medical association, and the Association of Military Surgeons of the United States. Previous to his transfer to District 4 of the United States Public Health service he was director of District 7 at Kansas City, Missouri.

Dr. John Albert Key, St. Louis, Missouti, graduated from Johns Hopkins University school of medicine in 1918; has practiced in St. Louis for twenty-one years his specialty of orthopedic surgery, during which time he has held the presidency of the American Orthopedic association and membership in five surgical societies as well as in the American Medical Association. He is professor of clinical orthopedic surgery at Washington University school of medicine. This is his first contribution to Jounnal Lancet.

Dr. Ralph I. Canuteson, president of American Student Health association and head of University of Kansas health service at Warkins Memorial hospital, Lawrence, Kansas, while modestly claiming to "lead a very ordinary and unspectacular life" is, according to a Journal-Lancer representative who called on him, inordinately busy and effective as ASHA presy and member of the executive committee of the Kansas Tuberculosis and Health association. His effectiveness in the activities of the American Trudeau society and American Public Health association is notable. Degrees—A.B. University of Wisconsin, M.D. University of Minnesota (1926); member of state and American medical associations; Sigma XI and Alpha Omega Alpha. A sturdy and progressive partizan in the cause of public health.

#### Book Reviews

Your Eye! Light on Sight, by F. L. WICKS, M.D. 171 pages, including index.

The author of this useful little book is too modest to father it with his name. But we have been able to pierce the veil of his anonymity and can tell you that he is none other than Dr. R. L. Wicks, past president of the North Dakota State Medical association and one of the leading practicing ophthalmologists in the Northwest.

During the 25 years devoted to his specialty Dr. Wicks has collected considerable evidence on the ignorance of the average layman regarding the organ upon which most of his life's happiness depends. He has designed his book to offset this ignorance, to inspire a less casual attitude toward the care of the eye and to stimulate parents and teachers to a lively awareness of sight threats to their charges.

The book is divided into three sections: The first acquaints the reader with the eye's normal anatomy, physiology and hygiene, describes its commonest defects together with corrective measures and explains the proper use and care of glasses; the second section states and answers those questions the author has found most baffling to his patients; the third contains a series of brief miscellaneous atticles dealing with related subjects, and the commoner eye diseases such as cataract, glaucoma, night and color blindness and others. Numerous diagrams graphically claifly the text.

Although the book is necessarily technical at times, and may demand a little thoughtful study from persons with no knowledge of eye structure, to those who have had school or college physiology courses it should be a welcome refresher. Its clearly expressed advice cannot fail to interest all with imperfect vision Perhaps its greatest value lies in its wartnings and practical suggestions to parents.

"Eye men" might well keep a copy of this book on their waiting-toom tables and call it to the attention of their more intelligent patients.

Bronchial Asthma, by Leon Unger, M.D. Springfield, Ill.: Charles C. Thomas, 724 pages, 126 figures, one color plate, 1945, \$900.

This monograph is offered to the student, general practitioner and the specialist at a time when interest in bronchial asthma has increased many fold on account of the fact that physicians are attempting more actively than ever to take proper care of any individuals with this disease. Then too, the fairly large number of cases which have appeared in the army and navy has indicated that this disease is one that should be given much consideration. The author appearently felt that his book was just the thing that the physician might need in order to be as up-to-date as possible in the handling of patients with bronchial asthma. The reader feels that it is not necessary to go back and review much that has been written on the subject of asthma. The author has done this and he has evaluated all that he has found in the light of his own personal experiences. Reading the book one feels that he is standing by as a consultant.

The monograph is divided into three parts There is a long chiical section followed by a laboratory section and appendix. The clinical part deals with the etiology, diagnosis and treatment, the laboratory section is devoted to the technic of preparing extracts and, for diagnosis and treatment, the technic of pollen and mold counts and special procedures. The appendix gives the sources of allergens and instructions regarding diets and avoidance of house dust and other excitants. As a whole the book is more than just another publication concerning an allergic subject, and therefore is highly recommended.

## Transactions of the Montana State Medical Association

Sixty-seventh Annual Session Butte, Montana
July 14, 15, 1945

OFFICERS, 1945-1946	DENTISTS, PHARMACISTS AND NURSES COMMITTEE
	B. K. KILBOURNE (chairman) Helena
(Elective) S. A. COONEY, 'Helena President	B. R. TARBOX
J. C. SHIELDS, Butte Past President	W. H. STEPHAN Dillon
M. A. SHILLINGTON, Glendive President-elect	PROGRAM COMMITTEE
W. H. STEPHAN, Dillon Vice President	M. A. SHILLINGTON (chairman) Glendive
R. F. PETERSON, Butte Secretary-Treasurer	T. F. WALKER
I. H. IRWIN. Great Falls Delegate to A.M.A.	R. F. PETERSON Butte
E. M. GANS, HarlowtonAlternate Delegate to A.M.A.	MEDICAL INSURANCE AND LEGAL AFFAIRS COMMITTEE
EXECUTIVE COMMITTEE	P. E. KANE (chairman) Butte
S. A. COONEY Helena	I. C. MACGREGOR
M. A. SHILLINGTON Glendive	G. A. JESTRAB
J. C. SHIELDS Butte	F. B. ROSS
B. R. TARBOX Forsyth	J. H. BRIDENBAUGH Billings
R. F. PETERSON Butte	E. R. GRIGG Bozeman
COUNCILORS	A. T. HAAS Missoula
District No. 1 R. D. KNAPP, Wolf Point 1946	MEDICAL PUBLICATIONS COMMITTEE
District No. 2 CHARLES HOUTZ, Havre 1946	A. R. FOSS (chairman) Missoula
District No. 3 J. H. GARBERSON, Miles City 1948	A. J. KARSTEDButte
District No. 4 T. R. VYE, Laurel 1948	H. J. HALL Missoula
District No. 5 R. G. SCHERER, Bozeman 1947	MEDICAL ECONOMICS COMMITTEE
District No. 6 R. G. JOHNSON, Harlowton 1948	H. J. GARBERSON (chairman) Miles City
District No. 7 F. B. ROSS, Kalispell 1946	M. A. SHILLINGTON Glendive
District No. 8 J. H. IRWIN, Great Falls 1948	R. B. DURNIN Great Falls
District No. 9 H. W. GREGG, Butte 1947	H. T. CARAWAY Billings F. F. ATTIX Lewistown
District No. 10 A. C. KNIGHT, Philipsburg 1946	POSTGRADUATE COMMITTEE
District No. 11 D. T. BERG, Helena 1947 District No. 12 A. R. FOSS, Missoula 1947	F. R. SCHEMM (chairman) Great Falls
District No. 12 A. R. POSS, Missoula 1947	S. V. WILKING Butte
APPOINTED COMMITTEES	A. R. KINTNER Missoula
(Committee appointments are all for one year, unless	FRACTURES COMMITTEE
otherwise designated)	S. L. ODGERS (chairman) Butte
LEGISLATIVE COMMITTEE	T. B. MOORE, Jr. Kalispell
S. A. COONEY (chairman) Helena	I. A. ALLRED Great Falls
I. M. FLINN Helena	H. J. HALL Missoula
D. T. BERG Helena	V. O. UNGHERINI Butte
O. G. KLEIN Helena	TUBERCULOSIS COMMITTEE
R. C. MONAHAN Butte	F. I. TERRILL (chairman) Galen
E. D. HITCHCOCK Great Falls	E. M. LARSON Great Falls J. L. MONDLOCH Butte
H. M. BLEGEN Missoula R. R. SIGLER Bozeman	W. GORDON Billings
HOSPITAL COMMITTEE	R. G. KEETON Bozeman
R. W. MORRIS (chairman), Helena1946	ADVISORY BOARD WOMEN'S AUXILIARY
R. L. TOWNE, Kalispell 1948	J. P. RITCHEY (chairman) Missoula
I. J. BRIDENSTINE, Miles City 1947	E. D. HITCHCOCK Great Falls
PUBLIC INSTRUCTION AND HEALTH COMMITTEE	E. S. McMAHON Butte
AND PUBLIC RELATIONS COMMITTEE	C. H. NELSON Billings
M. A. SHILLINGTON (chairman) Glendive	D. T. BERG Helena
L. W. BREWER Missoula	INDUSTRIAL HYGIENE COMMITTEE
R. E. SEITZ Bozeman	A. T. HAAS (chairman) Missoula
CANCER COMMITTEE	HAROLD SCHWARTZ Butte
H. J. GARBERSON (chairman) Miles City	J. B. FRISBEE Butte L. M. FARNER Helena
H. H. JAMES Butte J. H. BRIDENBAUGH Billings	MEDICAL MILITARY PREPAREDNESS AND
J. M. NELSON Missoula	DEFENSE ACTIVITY COMMITTEE
C. F. LITTLE Great Falls	E. H. LINDSTROM (chairman) Helena
HISTORY OF MEDICINE COMMITTEE	R. V. MORLEDGE Billings
E. D. HITCHCOCK (chairman) Great Falls	W. A. LACEY Havre
F F ATTIX Lewistown	F. L. UNMACK Deer Lodge
I. H. IRWIN Great Falls	F. L. ANDREWS Great Falls
ORTHOPEDIC COMMITTEE	ROCKY MOUNTAIN CONFERENCE COMMITTEE
L. W. ALLARD (chairman) Billings	H. W. GREGG (chairman), Butte 1948
G W SETZER Malta	R. W. MORRIS, Helena 1949
I K COLMAN Butte	C. H. NELSON, Billings 1946
R B RICHARDSON Great Falls	J. R. SOLTERO, Billings 1947
W. E. LONG Anaconda	T. F. WALKER, Great Falls 1950

NOMINATING COMMITTEE	
A. R. FOSS (chairman)	issoula
E. M. GANS	rlowton
L. G. DUNLAP	naconda
MATERNAL AND CHILD WELFARE COMMITTEE	
F. L. McPHAIL (chairman), Great Falls	1947
D. L. GILLESPIE (vice chairman), Butte	1947
J. DIMON, Polson	1946
T. L. HAWKINS, Helena	1947
L. W. BREWER, Missoula	1946
P. L. ENEBOE, Bozeman	1946
E. A. HAGMANN, Billings	1947
R. L. TOWNE, Kalispell	1947
E. L. GALLIVAN, Helena	1946
A L. GLEASON, Great Falls	1946
B. C. FARRAND, Jordan E. A. WELDEN, Lewistown	1946
E. A. WELDEN, Lewistown	1946
MAUDE M. GERDES, Billings	1950
MAUDE M. GERDES, Billings S. N. PRESTON, Missoula	1946
STATE INSTITUTIONS	
W. E. LONG (chairman) A	naconda
H. W. GREGG	Butte
I. I. WERNHAM	Billings
REMABILITATION COMMITTEE	
H. J. McGREGOR (chairman) Gre	at Falls
F. P. NASH	wasend
JAMES McCABE	Helena
E. M. GANS Ha	rlawton
I. E. GARVEY	Butte
RURAL MEDICAL SERVICE COMMITTEE	
F. F. ATTIX (chairman) Lin	anaston.
F. E. KEENAN Gre	at Falls
J. W. CRAIG	
R R TARBOX	Foreveh
B. R. TARBOX R. B. FARNSWORTH Virgin	ia City
REVISION OF THE CONSTITUTION COMMITTEE	
M. G. DANSKIN (chairman)	ilendive
F. D. HURD Gre	ar Falls
R. M. MORGAN	Helena

#### ANNUAL MEETING OF THE COUNCIL OF THE MONTANA STATE MEDICAL ASSOCIATION

First Session, 9 A.M., Saturday, July 14 at the Placer Hotel

Present were J. H. Garberson, Miles City, L. W. Allard, Billings, J. H. Irwin, Great Falls, H. W. Greegg, Butte, A. C. Knight, Philipsburg, D. T. Berg, Helma, A. R. Foss, Missoula, J. C. Shields, president, R. F. Peterson, secretary-treassound, J. G. Shinday, president, K. F. Peterson, Secretary-tenson, secretary, Dr. B. F. Peterson, secretary, Dr. J. H. Irwin appointed Dr. D. T. Berg, Dr. A. C. Knight, Dr. A. R. Foss as an auditing committee. The report as signed by the above three members is as follows:

"We, as members of the finance-auditing committee of the council have inspected the audit and found it to be in order."

It was moved by Dr. Gregg and seconded by Dr. Berg that the minutes of the last meeting of the council as published in the JOURNAL-LANCET be accepted as read. Unanimously approved.

A letter from the JOURNAL-LANCET to the secretary was read, and the letter was referred on motion of Dr. Gregg and seconded by Dr Knight to Dr. A. R. Foss, chairman of the publications committee, giving him power to act with the suggestions therein recorded as to the editorial board and the submission of scientific papers from Montana.

Dr. A. R. Foss of Missoula moved that the following motion from the Western Montana Medical society be approved:

"We are unanimously opposed to the continuation of the E.M.I.C. program after the war." Passed unanimously.

It was moved by Dr. Gregg and seconded by Dr. Berg that Mr. E. G. Toomey of Helena be retained as counsel for the Montana State Medical association for the ensuing year at \$300.00 per year

The council was then adjourned, subject to call.

#### **PROCEEDINGS** of the

#### HOUSE OF DELEGATES SIXTY-SEVENTH ANNUAL MEETING of the

MONTANA STATE MEDICAL ASSOCIATION 10 A.M., Saturday, July 14, 1945

The Hotel Placer, Helena, Montana

The session was called to order by the president, Dr. J. C. Shields. The following delegates presented credentials and were seated during the two-day session: Cascade county—Drs. Thomas Walker, J. H. Irwin, R. B. Durnin, H. J. McGregor, F. D. Hurd, E. D. Hitchcock; Choteau—None; Fergus—Drs. R. G. Johnson, F. F. Artiz, Flathead—Dr. Edith Boyd; Galatin—None; Hill—Drs. F. W. Aubin, Chester Lawson; Lake—None; Lewis & Clark—Drs. W. F. Cashmore, D. T. Berg, Madison—Dr. R. B. Farniworth; Mt. Pawell—Drs. A. C. Knight, F. I. Terrill; Musselshell—None; Northeentral—None; Northeastern—None; Park-Sweetgrass—None; Silver Bow— Drs. W. H. Stephan, D. A. Atkins, P. T. Spurck, S. V Drs. W. H. Stephan, D. A. Atkins, P. I. Spurck, S. V. Wilking, H. W. Gregg; Southeastern—Drs. B. R. Tarbox, M. G. Danskin, B. C. Farrand; Western—Drs. L. W. Brewer, H. M. Blegen, A. R. Foss, C. L. Farabaugh, J. P. Ritchey; Yellowstone—Drs. L. W. Allard, T. R. Vye, H. T. Caraway The president, Dr. J. C. Shields, opened the session with the following starement: "This is the sixy-seventh annual meeting of the Montana State Medical association. At this annual meeting of the Montana State Medical association.

ing, for the first time in our history, there will be no scientific session. These two days, July 14th and 15th, 1945, will be devoted to the business of the association. The two important subjects at this session will be public relations and the report of the economic committee on voluntary prepaid medicine. At the banquet this evening, which will be at 7 o'clock at the Montana Club, I will gue a short talk." Dr. A. C. Knight of Philipsburg was requested to preside

over the house while the president attended to other business.

Dr. J. H. Irwin moved that the minutes of the sixty-sixth annual session held in Butte, Montana, July 13 and 14, 1944, be accepted as published in the JOURNAL LANCET of October, 1944. This was seconded by Dr. B. C Farrand and unantmously passed.

Upon returning to the chair, Dr Shields appointed as the necrology committee the following: Dr. F. D. Hurd, chairman; Dr. H. W. Gregg, Dr. A. R. Foss To seve on the resolutions committee he appointed the following: Dr. L. W. Brewer, chairman; Dr. Thomas Walker, Dr R G Johnson

#### The report of the secretary was then received SECRETARY'S REPORT TO THE HOUSE OF DELEGATES

The Association membership is as follows:

	1945	1944	1940
Total		444	408
Life and Honorary	. 8	7	
Military	114	107	
Dues-paying	308	330	408

An important fact in this chart which must be considered by the house of delegates is that in 1940 there were 408 duespaying members, whereas in 1945 this has dropped an even 100 to 308. Up to July 15, 65 of these dues-paying had not remitted, so that by the end of 1945 it is possible that this part of our membership may drop below 300 A further breakdown of the dues paying members is as follows:

Retired and inactive	20
Semi-retired	13
Government and Board of Health	5
Practicing in other states	2
Active private practice	268

Total 308

There are in Montana at least 36 doctors who are not members of the state association. Of these, 24 are in active practice and 12 are retired. Of the 24 who are in active practice, 7 are in the Indian services or the Veterans services. However, is is the duty and obligation of the councilors and local medical societies to see that as many as possible of these men become members of the local and state associations.

The activities of the secretary's office were unusually heavy the past year due mainly to the following reasons:

1) The campaign against Initiative No. 48,

2) A large number of national legislative issues,

3) Intensive acceleration in public relations activities,

4) Prepayment medical plans, both local and national. Your association is far behind most other states in these

activities and must attempt to catch up.

Your secretary traveled between 8,000 and 9,000 miles during the year on association business, and about 2500 letters were mailed from the office. These figures are given because it is felt that to have done the kind of job that the association deserves, these figures would at least have to be doubled.

The minutes of the secretaries' meeting that was held in Chicago in November, 1944, and which was attended by the secretary, were given in full in the Journal of the American

Medical Association for your inspection.

In March, 1945, a meeting of the United Public Health league was attended in Salt Lake City. Your secretary herewith brings to you an invitation from that organization that the Montana State Medical association become a member of that organization.

For the defeat of Initiative 48, the membership displayed real solidarity—259 association members paying assessments besides 4 non-members and 5 members in the services.

R. F. PETERSON, M.D., Secretary.

It was moved by Dr. Walker and seconded by Dr. Hurd that the secretary's report be accepted and made a part of the minutes. The motion passed unanimously.

Dr. Hurd made a motion that the House of Delegates of the Montana State Medical association go on record as supporting and approving the United Public Health league and allow individual solicitation of dues from its members. This motion was seconded by Dr. Caraway and passed unanimously.

was seconded by Dr. Caraway and passed unanimously.

Report of Finance Auditing Committee

The following report was presented by Dr. J. H. Irwin:

"We, as members of the finance auditing committee of the council, have inspected the audit and found it to be in order."

D. T. BERG, M.D. A. C. KNIGHT, M.D. A. R. Foss, M.D.

### REPORTS OF STANDING COMMITTEES Publications Committee

Dr. R. F. Peterson, secretary-treasurer of the Montana State Medical association, has a letter from the JOURNAL-LANCET, in which they state that there have been very few papers from Montana during the past few years. We have not taken the interest in our publication that we should have, and the JOURNAL-LANCET wants us to take more interest in this in the future.

In the first place, they would like to have each county society send in the papers which are read at their local meetings. This would help a great deal, as most papers are read and then put away, and forgotten about. In that way, much valuable time of our doctors is taken and lost, after it is once read at the session.

During the coming year, the JOURNAL-LANCET would like to revise the official editorial board, and has called on Montana to revise their board of the JOURNAL-LANCET. Your committee is going to do that some time soon.

We feel that the JOURNAL-LANCET is a good publication, and are doing their best to serve us. Our contract with the journal

does not expire this year.

### A. R. Foss, M.D., Chairman. ublic Instruction and Health

Committee on Public Instruction and Health and Public Relations Committee

This committee, as a whole, has had no meetings. The chairman has been giving some consideration to the matter of public relations. Apparently public relations is the most important subject before the doctors at the present time. We are faced with the threat of being employed by the government instead of working for ourselves. It is upon the general public that we will have to depend for an opinion to counteract this movement.

Public relations are carried on in a number of various ways:

1) The general attitude and deportment of the doctor in his office.

2) The use of radio programs by commercial companies which are purveyors to the doctors, such as the program of

Lederle Laboratories, called "The Doctors Talk It Over."
3) The use of public health leagues which are being established by many states. 4) The use of radio and newspapers by the medical societies as mediums for direct contact.

The chairman of your committee has the following to say about these: 2) Lederle Laboratories has granted us permission to have a medical society tie-in with their program on all four stations in Montana. 3) The Public Health League in Montana is alive and growing and an active concern. It is very es-sential that this house of delegates go on record as approving the work of the Public Health league and make some definite recommendations to the Montana State Medical association for financing their activities. 4) The use of newspapers and radio by the doctors themselves does not seem to be a logical choice at this time. First of all, the cost of these services is very great. The radio programs must be artistically prepared and artistically presented to be at all effective. It has been the experience, particularly in New York state where this work has been done successfully, that it takes an active staff to prepare, edit, and rehearse the programs for each week. This we cannot do in Montana. The Southeastern Montana Medical society has carried a program on the Miles City station for several months. We have been unable to get a survey to see whether or not this is of value, but I doubt it. The osteopaths have been putting on a program on some of the Montana stations which is very grandiose and very misleading in its statements to the public. Their program savors of the Indian medicine-show type of advertising. Such a thing must definitely be avoided by the medical profession.

In conclusion I have the following recommendation to make: that the president of the association appoint a committee consisting of five members, strategically placed geographically in the state, to handle the matter of public relations and to represent the medical profession to the Montana Public Health league, to aid in securing funds from the physicians to support the League, and to approve any public propaganda the Public Health league might put out relating to the medical profession.

M. A. Shillington, M.D., Chairman

Dr. Attix moved that the house of delegates elect a member to act as a director to the Public Health League of Montana and to be chairman of the committee on public relations and that the executive committee appoint four additional members to this committee. Dr. J. H. Irwin seconded the motion. After a discussion it was moved by Dr. Hurd and seconded by Dr. Cashmore to table the motion. A standing vote revealed 19 for tabling the motion and 5 against. It was then moved, seconded, and passed that the president appoint a committee of five to study the matter of how the Montana State Medical association will be represented in the Montana Public Health league and to bring in a recommendation this afternoon. The following committee was appointed: Drs. J. H. Garberson, H. J. McGregor, F. F. Attix, M. A. Shillington, D. T. Berg.

Mr. D. W. Bowler, manager of the Montana Public Health league, and Mr. Frank Hazelbaker, field representative, gave a report of the activities of the Public Health league and sketched an outline of their future proposed activities.

The meeting was then adjourned for lunch, and on reconvening at 2 P.M. Dr. Garberson presented the following report of the proposal committee that was appointed in the morning:

Your committee recommends the appointment of the public relations committee, of the Montana State Medical association, by the president, in accordance with the by-laws.

The committee further recommends that the work of the Public Health League of Montana be commended, and that the Montana Medical association cooperate with said Public Health league

We further recommend that the house of delegates elect one representative to serve on the board of directors of the Public Health League of Montana; and we further recommend that the Public Relations committee of the Medical Association of Montana shall act in an advisory capacity to said representa-

J. H. Garberson, M.D., Chairman H. J. McGregor, M.D. F. F. Attix, M.D. M. A. Shillington, M.D. D. T. Berg, M.D. Report of Cancer Committee

Owing to conditions, your Cancer committee has done little during the past year, excepting to lend its cooperation to the Women's Auxiliary of the American Cancer society.

This society has, we feel, done a splendid piece of work in Montana. During their recent drive, they collected \$39,000 00 in the state, thereby leading all of the states in the union.

A great deal of this success is due to the enthusiasm and untiting energy of Mrs. Anna Peterson, and we feel that her efforts and the efforts of the other ladies in this society should be formally recognized by the Medical Association of Montana.

It is recognized by this committee that much work should be done in the way of educating not only the public but the doctors in the early recognition of cancer. However, as was the case one year ago, we still feel that little of this can be done until the war emergency is over, and until the normal complement of physicians has returned to the state of Montana. But we feel that when that condition does obtain, a definite program should be entered into by this association in cooperation with the American Cancer Society, looking both towards further education of the public and further training of the practitioners of Montan in the early recognition of cancer.

of Montana in the early recognition of cancer.

J. H. Garberson, M.D., Chairman
Dr. Berg made a motion that Mrs. Anna Peterson be made
an honorary member of the Montana State Medical association
for her outstanding and unselfish work in cancer prevention
and public health in the state of Montana. Dr. Irwin seconded
the motion and it passed unanimously. A suitable plaque was
provided with the following inscription, to be presented at the
banquet to Mrs. Peterson:

THE MONTANA STATE MEDICAL ASSOCIATION
To All to Whom These Presents Shall Come, Greeting:
Be It Known, That by vitue of authority vested in them
the Delegates of the Montana State Medical Association
do hereby confer upon

do hereby confer upon MRS. ANNA PETERSON AN HONORARY MEMBERSHIP

MONTANA STATE MEDICAL ASSOCIATION
These letters being their testimonial of the unselfish devotion
and outstanding accomplishments of the
Officers and Members of

THE MONTANA DIVISION,
AMERICAN CANCER SOCIETY
in the field of

in the field of

CANCER PREVENTION AND PUBLIC HEALTH.

Given this fourteenth day of July,

nineteen hundred and forty-five.

J. C. Shields, M.D., President R. F. Peterson, M.D., Secretary

Annual Banquet, July 14
Dr. R. W. Morris was toastmaster at the banquet. Col. C.
H. Fredrickson, M.C., of Missoula, recently returned on leave
from the southwest Pacific, was the main speaker of the evening. He gave an excellent and interesting discussion on his
war experiences.

At the banquet Dr. J. C. Shields, as president, presented the plaque to Mrs, Peterson with the following statement:

CHRISTIAN CHARITY: An Address
"The world today is more in need of charity—love of our

"The world today is more in need of charity—love of our fellow man—than at any other period of history, unless it be the fall of the Roman empire.

In college I had an old professor of Latin. Besides being a good Latin scholar, he was something of a philosophic. His philosophic definition of charity, the love of fellow man, was this: Love is that attribute of a rational being by which he gives himself and asks nothing in return. This, ladies and gentlemen, is true Christian chantty, to give one's self, one's skill, talent and time for the welfare of humanity, asking nothing in return. The virtue of charity, I think, more than any other Christian attribute, marks the difference between the pagan and the Christian world

In order to emphasize and fix an idea or definition in our young minds, the old Latin professor employed history, story and legend. Likewise, on this occasion he gave us the following history and legend. Some fifty miles west of Rome, as the traveler ascends the course of the Anio river, he comes to an

open space or basin, surrounded by immense walls of perpendicular rocky cliffs. From above, the waters of the Anio, plunging from fall to fall, cut a deep, natrow gorge in the western foothills of the Apennine mountains. This place is called Subiaco.

The emperor Nero perceived the grandeur of the place. He dammed the waters of the Anio, making an artificial lake with baths below and erected a beautiful villa. Here during the hot Italian summers, Nero and his court gathered for celebrations and feast. One night while Nero sat at the table a crash of thunder shattered a cup of wine as he held it to his lips. His miserable soul was filled with horror, and considering it a bad

omen he deserted the place.

Centuries passed. Underbrush, briars and giant trees of the forest grew in the gardens, and the villa became the lair of wild beasts. Four hundred years after Neto, when solitude and silence had long replaced the imperial orgies, a young patrician, fleeing from the delights and dangers of Rome, sought there a refuge in which to study, pray and contemplate. He was baptized Benedictus, meaning, 'well said' or 'blessed'. A scion of the lords of Nursia, he deserted honor, fortune and happiness to give himself for his fellow man, asking nothing in return. He was followed by only a male nurse as he plunged into this wild gorge, ascending an almost inaccessible hill on the site of which he discovered a cavern that overlooked the Anio.

His old nurse supplied him with food by means of a rope on which hung a bell to northy Benedict of the arrival of his daily bread. Here Benedict lived in solitude, prayer and study for three years. His reputation for wisdom, learning and thatity spread throughout the countryside. In a few years this anthorite of Subiaco was directing several monasteries, but now Benedict pointed his steps southward along the western slopes of the Apennines. He came to a large flat basin, in the center of which rises a rocky, precipitous mountain with rounded, flattened top, known as Monte Cassino.

At the foot of this mountain were the ruins of an ancient town called Cassinum, and somewhat above an amphitheater which dates from the time of the caesars. The place had been famous for generations because of the writings of that noble old pagan, Varro, whom the disciples of Benedict honored and revered.

From the summit, the bitthplace of the prince of Roman orators could be seen in the distance, and the landscape extended to the southwest in an undulating plain to form the shores of the Mediterranean. To the northeast the rugged valleys and canyons were lost in the skyline of the Apennines. Centuries later, Dante in his 'Paradise' sings of St. Benedict and the grandeurs of Mount Cassino.

On the summit of the mountain were two temples to Apollo Although Rome had been Christian for over two centuries, the inhabitants were pagans. Benedict reconverted the pagans, and with the aid of his disciples he changed the temples of Apollo into chapels and established the most famous monastery in all of Christendom, Monte Cassino

This famous monastery was first destroyed by the Lombards in the sixth century; it was rebuilt in the eighth; destroyed by the Saracens in the ninth, later restored, again despoiled by Napoleon, and finally reconstructed to much of its ancient grandeur during the nineteenth century. During the present war as our boys advanced over the rolling plains from the shores of the Mediterranean, the Germans used the monastery of Mount Cassino as a lookout. The monastery was again destroyed by our own air forces. Let us hope that through America's generosity, it will be restored, as the University of Louvain was following the first World war

Clergy and layman, peasant and nobleman, barbarian and pagan flocked to Benedict. His disciples went forth to all the barbarian tribes of Europe—Goths, Visigoths, Vandals, Teutons, Gauls and Franks—to christianize, civilize and educate in the arts of peace, to copy and preserve the literature and the culture of the ancient world, to found the monastery with its hospice where the weary traveler might be refreshed, the beggar fed, the ill nursed to health, and solace given to the leper St. Benedict and his disciples gave themselves for humanity, asking no reward.

We of America, descendants of every race of western Christendom, inherit this virtue of Christian charity in our language, our literature, our art, this giving of one's self, asking nothing in return. It is this of which Lord Tennyson sings in 'Sir Galahad'; of which our own poet, Lowell, breathes forth in the 'Vision of Sir Launfal.' It is that which the artist, Murillo, depicts in that rare old painting, 'The Children of the Shell,'—where an injured child kneels heavily, resting against his staff, while a second child gives drink from a broken shell. Faintly in the clouds can be seen Ecce Agnus Dei, Behold the Lamb of God.

It is well for the future world that America is so blessed with that noble virtue, Christian charity, while unfortunate Europe

writhes in agony from neo-paganism.

As president of the Montana State Medical association, it is my pleasure and privilege to pay tribute to that galaxy of loyal Montana women who exemplify that noble virtue-Christian charity-the giving of their time, their talent, their labor in the field of cancer prevention and public health, asking nothing in return.

The house of delegates, by virtue of the authority vested in them, have conferred upon you, Mrs. Anna Peterson, state com-mander of the Women's Field Army, an honorary membership

in the Montana State Medical association.

This plaque, which I now present to you, is our testimonial of the unselfish devotion and outstanding accomplishments in the field of cancer prevention and public health, of the officers and members of the Montana division of the American Cancer Orthopedic Committee

Dr. L. W. Allard, Chairman Committee on Dentists, Nurses and Pharmacists

DENTISTS: The number of dentists practicing in the state ordinarily is approximately 300. Sixty-one dentists have been inducted into the services, and only two or three have returned to the state after separation from service. The need for additional dentists is becoming acute within the state. The state dental association reports that the prospect for additional dentists is very slight.

PHARMACISTS: The total number of registrants in good standing in the state is 644, but the total practicing within the state at the present time is 283. There are 222 registered pharmacies in the state at the present time. One hundred and one pharmacists have been inducted into the armed forces; three have been killed in action, three have been discharged, and one

is a prisoner of Japan.

NURSES: The number of nurses registered in Montana in 1945 is approximately 700. Two hundred and forty new students completed training and passed the examination for registered nurses. From January 1, 1944, through December 30, 1944, 83 nurses were assigned to military service from Montana. From January 1, 1945, through June 1, 1945, 87 nurses were assigned to the military forces from Montana. The nursing association reports that the quota for nurses from Montana has always been exceeded. Owing to the large number in the armed forces, most of the hospitals are operating on a limited personnel and are employing large numbers of nurses' aides to do the work formerly done by registered nurses.

B. K. KILBOURNE, M.D., Chairman

Committee on History of Medicine Dr. E. D. Hitchcock, Chairman

It was reported that there has been no activity in the past year by this committee and that the material that has so far been compiled is on file and in a vault in Great Falls to which this committee has access. It was moved by Dr. Durnin and seconded by Dr. Danskin that the historical committee be enlarged, that it resume work, and also to involve each local society in the work of keeping all local medical history up to date. This was passed unanimously. Dr. Allard moved that not more than \$300 be appropriated for stenographic expense to continue the medical history of Montana. Dr. L. W. Brewer seconded the motion and it was passed unanimously.

Program Committee
Dr. T. F. Walker, Chairman
As there was no scientific program at this session, this committee had no special duties.

Advisory Board on Women's Auxiliary

July 14, 1945

The advisory committee to the Women's Auxiliary to the State Medical association held a meeting today. It approved the purpose of the Auxiliary to undertake some project, such as, for instance, the subject of food inspection, for the coming year. It sought to clarify the relationship existing between the Auxiliary and the State Medical association. It suggested the practicability of certain alterations in the constitution and by-laws of the state Auxiliary in the interest of facilitating the conduct of its proceedings and its business,

Your committee takes this opportunity to commend to your consideration, your appreciation and your gratitude, the extremely valuable cooperation and accomplishments of the Auxiliary on behalf of the best interests of the State Medical asso-

ciation.

J. P. RITCHEY, M.D., Chairman Rehabilitation Committee Dr. F. F. Attix, Chairman

L'egislative Committee

Dr. S. A. Cooney, Chairman Your Committee on Legislation, by and through the chairman, undersigned, hereby makes report as to the subject of legislation in which the association was interested during the 29th legislative assembly of Montana, held at Helena, commencing January 1, 1945, and ending March 1, 1945.

I. With reference to legislative proposals which were enacted

into law:

House Bill 42: (Chapter 20, Laws 1945): This bill authorizes and directs the state board of health to obtain blood from donors, to purchase equipment necessary to process such blood, and to furnish blood and plasma free of charge to the people of the state. The sum of \$20,000 is appropriated for purchase of equipment in payment of expenses. It is doubtful whether the measure will constitute a real improvement over the existing practice in the principal hospitals of the state, the larger clinics, etc., to provide blood plasma, etc. However, if the measure does any good, its existence is probably justified, and its passage surely illustrates that popular causes are not readily impeded by practical considerations.

House Bill 148: (Chapter 170, Laws 1945): This bill establishes in the state board of health a division of tuberculosis control and appropriates therefor \$25,000 for each of the next two fiscal years. The measure should prove of real utility in centering the administration of tubercular control, in giving some measure of coercion as well as persuasion in the field; and in affording a foundation for greater activity in the light of

experience.

House Bill 163: (Chapter 171, Laws 1945): This is the measure which provides for full-time local health boards, or combinations of cities and counties, or counties. For the first time in Montana, there really exists a legal foundation for the activities of such boards, and the cooperative nature of the administration ought, when professional help is available, result in marked improvement in the administration of public health laws in every area of Montana.

House Bill 189: (Chapter 119, Laws 1945): This measure provides for pre-natal examination of pregnant women with reference to existence of syphilis, etc. It is one of the most advanced health measures ever adopted by the state of Montana, and should prove useful in the early discovery of syphilis during pregnancy with consequent application of controls, etc., before, on and after birth. Perhaps, having submitted this measure, a subsequent legislative assembly will actually enact the premarital test, into law. But, in view of experience, this latter

statement is pure surmise.

House Bill 325: (now found at pages 579-606, 1945 Session Laws): is the general appropriations bill for the operation, maintenance and other purposes of state department, boards, bureaus and commissions. Among other boards affected, was the state board of vocational training and rehabilitation, and its activity of civilian rehabilitation under "Bureau of Civilian Rehabilitation." This bureau and the state board called upon the undersigned at a time when it appeared that no appropriation would be forthcoming for the work of the bureau. At the very close of the session, the bill was in the senate committee on finance and claims, with no appropriation having been made, when Mr. Leif Fredericks enlisted the aid of the undersigned, who responded by repeated appearances before the senate com-mittee on finance and claims. The bill was amended, with the result that the 1945 session appropriated \$70,000 to the bureau

for the biennium 1945-1947. (Page 581 and page 594, 1945 Session Laws.)

The Association's interest in this work has been somewhat slow in developing due, no doubt, to lack of information as to the extensive expansion of the rehabilitation program in consequence of laws passed by congress in 1943. For this reason, it may serve a useful purpose summarily to review the matter in this report, as follows:

The original law (Public 236) was enacted by congress and approved by the president, June 2, 1920, hence the foundation has been in existence for 25 years.

The law provided for the vocational rehabilitation of disabled persons and their return to civil employment. A disabled person was defined to mean "any person who, by reason of a physical defect or infirmity, whether congenital or acquired by accident or disease is, or may be expected to be, totally or par-tially incapacitated for remunerative employment." The law also provided for the administration of the program by state boards of education, and the equal matching of funds by the federal and state governments. Benefits under the act were hmited to training, but made possible, under certain circumstances, the purchase of artificial appliances. An acceptance act by Montana was passed by the Montana state legislature in 1921.

This basic law was amended in 1924 and again in 1932, but

its provisions remained substantially the same.

However, Public Law 113 passed by Congress and signed by the president on July 6, 1943, greatly expanded the rehabilitation program and provided, in addition to benefits under origi-nal act, for the following services:

1) Physical restoration, including corrective surgery, hospitali-

zation, and nursing care.

2) Any prosthetic device or appliance essential to obtaining or retaining employment. 3) Maintenance support of clients receiving training or other

4) Necessary transportation and occupational licenses.

The 1943 law also provided for the rehabilitation of wardisabled civilians, members of the merchant matine, and war

veterans with non-service-connected disabilities.

The physical restoration feature of the new law became effective in Montana in January, 1945, with the appointment of Dr. S. A. Cooney of Helena as medical consultant to the Montana bureau of civilian rehabilitation and Glenn Lockwood to the position of physical restoration supervisor.

The new legislation was brought to the attention of the Montana State Medical association at its meeting in Butte last July by Mr. Leif Fredericks and its principles formally approved by the association. At the request of Mr. Fredericks. Dr. Shields, the president, appointed a number of physicians to serve on our professional advisory committee. These are:
Dr. Attix of Lewistown, chairman; Dr. Dutnin of Great

Falls, Dr. Colman of Butte, Dr. Morgan of Helena, Dr. Tex-

till of Galen.

To these men the bureau added Dr. Kilbourne of Helena, Milo Dean of Great Falls, representing hospital administration, and Miss Anna Beckwith of Helena, representing the nursing profession. The committee has already held three meetings in 1945. General policies, including the establishment of appropriate standards, the selection of facilities, and the rates of remuneration for services are determined by the committee.

In his report of activities to the association, Mr. Fredericks said: "Our medical consultant, Dr. Cooney, is the final judge in all cases that come to us for physical restoration services. No

case is accepted without his approval.

Administrative expenses of the bureau are paid 100 per cent by the federal government, which matches, 50-50, costs of actual services to individuals. The last legislature appropriated \$70,-000 to the bureau for the next biennium, which gives us a total of \$140,000 for rehabilitation purposes, exclusive of administration. Dr. Cooney appeared with me before the finance and claims committee of the senate, and his work and statements helped materially in securing so large an appropriation."

The remarks of Mr. Fredericks with respect to any aid from the undersigned, are not incorporated herein from any motive of self-praise, but they are incorporated herein to drive home to the members of the association the necessity of closely following any and all legislation in which the association may be interested in passing, or, on the other hand, in defeating, and to show that, contrary to the opinion of many of the halfhearted, the assembly has respect for the opinions of the medical profession, wants to hear such opinions and will generally act responsively to them when they are fully presented, without rancor or the injection of collateral matters.

There is a restrictive feature in connection with the actual administration of the federal statute and, necessarily, state activities, to the extent that they are controlled by the federal statute which deserves notice and, in the judgment of the undersigned, should be removed. The restriction lies in the fact that the bureau of vocational rehabilitation, within the social security administration, which bureau cooperates with the Montana bureau of civilian rehabilitation, lays down rules and regulations to the effect that only those doctors of medicine can participate in the program who are affiliated with 11 the American College of Surgeons, or who are 21 diplomates, under one or the other of the recognized heads of that term. These regulations have the immediate effect of depriving most Montana doctors of medicine, certainly all who do not come within the restricted claims named, of any place or function under the program. The army and the navy have seen fit to call on these men, in large army and the hary nave seen in to can on the nation, and it is a strange thing that they are not, in the eyes of the federal bureau mentioned, sufficiently equipped to participate in this program. The fault, if any, does not lie with the individual doctor; it stems from the medical colleges and schools and reflects on their training and instruction. Every day doctors of medicine in Montana are caring for persons who are not under the program, but whose disabilities are identical with those who are under restrained, nowith-standing the less numerous the less numerous the less numerous....ld be removed, and . class. The it is recommended that the Montana State Medical association take steps in aid of such removal.

II. With respect to measures which failed of passage:

The only measure in which you would probably be interested was H. B. 95, a new uniform nurses practice act, which passed both houses of the legislative assembly but was vetoed by the governor because he thought it would "eliminate the practical nurse," notwithstanding the presence of a waiver section which left practically anyone "in" for the next three years, and after that established reasonable requirements for their admission to the status of licensed attendants. It is probably true that there was considerable basic opposition from rural areas, and small towns, which are now almost bereft of any kind of nursing service. It probably is also true, and on this our counsel expresses definite conviction, that the governor was influenced by osteopaths and chiropractors who are always antagonistic to any legislation which has the backing of a medical fraternity. They insisted on their "office attendants" and servants being wholly exempt from the act, and were granted this concession in the bill, but it is thought they continued their opposition in the governor's office after they found the legislative assembly agreeable to passage.

S. A. COONEY, Chairman

Medical Economics Committee

Your economics committee has done considerable work during the current year. It has held three meetings, besides numerous conferences, etc., one meeting at Billings and two at Helena. In this connection, we think it is no more than just that recognition be given to the outstanding work, energy and time which have been devoted to these matters by Drs. Shillington and Caraway.

Of paramount importance at this time is the consideration of various plans for the pre-payment of medical service. This is recognized by practically all of our state societies and also by the American Medical Association. It is also recognized that, at the present time, there has not been formulated any plan which is applicable to the entire United States. It is still desirable that the various states attempt to work out some plan which is feasible within their own confines, in the hope that eventually some unified solution may be arrived at

It is the opinion of this committee that some method of prepayment for medical services is the only method available to the profession, which offers any hope of forestalling such meas-

ures as the Murray-Wagner-Dingell bill

There are certain fundamentals which your committee believes must be observed, in the consideration of any prepayment plan: First—the free choice of physicians on the part of the pa-

tients;

Second—the right of the individual physician to determine for himself whether he desires or does not desire to participate in such a plan; and

Lastly-that services should be rendered, and not a cash in-

demnity paid in event of illness.

The experience gained in caring for several hundred rural families in eastern Montana has been utilized. Studies have been made of plans in effect in other states, notably California, Washington, Oregon and Michigan, as well as certain plans in successful operation in parts of Canada. As a result of these studies, we are prepared to present to you for your consideration a plan which, in the opinion of the committee, could be adopted as a basis for state-wide action.

In accordance with the instructions previously given us, this committee is also prepared to submit at this time a revision of the minimum fee schedule for the Medical Association of Montana; bearing in mind, however, that this is a minimum fee schedule, to be utilized for families and organizations to which it may be applicable, and does not in any manner bind the members of the Association to conform with it in event the

patient is able to pay a higher fee.

J. H. GARBERSON, M.D., Chairman F. F. ATTIX, M.D. R. B. DURNIN, M.D. H. T. CARAWAY, M.D. M. A. SHILLINGTON, M.D.

There was considerable discussion about the various types of prepaid insurance plans. Dr. M. A. Shillington gave an analysis of the various plans and a plan proposed for Montana, working on a basis already in effect in Montana. It was moved by Dr. Hurd and seconded by Dr. Farabaugh that the president appoint a committee of three to determine how best to get a referendum to determine how the doctors feel about an insurance plan for Montana. This motion was amended to include in the referendum the proposed minimum fee schedule. (However, on July 15 this amendment was rescinded unanimously after Dr. Hurd had made a motion to that effect and Dr. Durnin had seconded it.) The appointed referendum committee is composed of Dr. T. R. Vye, chairman, Dr. O. G. Klein, Dr. M. A. Shillington. Their report which was presented on July 15 is presented here to unify the records:

#### Referendum Committee

"We, the committee, recommend that each member of the state society be furnished data, to include outline of plan, insured's application, the doctor's agreement to give service, and

other pertinent information.

It is recommended that the secretaries of component societies call a meeting of their respective societies within a period of two weeks after aforesaid information has been received, when the subject at hand will be discussed. Each member present to be given a ballot on which he will signify his desire to accept or reject the plan. These ballots to be sent to and tabulated by the state secretary. Also at the time of the local meeting where the balloting takes place, each society to elect a member to represent it at a corporate meeting, provided the measure is accepted. Said corporate meeting to be called by the state secretary within two weeks from the time the ballots are tabulated. Also it is recommended that the representatives of the California society be invited to be present at said organization meeting."

#### Tuberculosis Committee

The tuberculosis committee is pleased to report that during the past year a division of tuberculosis has been created under the state board of health. The state board of health is expected to hire a physician to supervise the tuberculosis activities in the state and to assume control of a mobile photoroentgen unit which was purchased by the state tuberculosis association. The mobile unit is expected to be delivered in December of this year, and it is hoped that operation will start by January 1st.

Several photoroentgen units will also be installed in cities throughout the state to aid in the tuberculosis control program.

A resolution was passed by the Montana State Medical asso-

ciation advising the governor of Montana, as chairman of the post-war construction and planning commission, of the need of a 150-bed modern hospital unit at the state tuberculosis sanatorium and urging that funds be allocated from the surplus funds in the state for post-war construction.

F. I. TERRILL, M.D., Chairman

Maternal and Child Welfare Committee

This committee serves primarily as the advisory committee to the Division of Maternal and Child Health of the Montana State Board of Health. The policies and the program are reviewed with the division director and recommendations made regarding policies and activities. Report is made as follows:

MORTALITY STUDIES: The five year study of maternal and infant mortality and stillbirths was closed as of January, 1945. Through the cooperation of the Montana physicians data has been collected by questionnaires on maternal and infant deaths and stillbirths since January, 1939. It is the plan to compile the results of the study during the coming year. Montana can be proud of the low maternal mortality rate during this period with 18 maternal deaths per 10,000 live births in 1944 as compared with 32 in 1939. The infant mortality rate in 1944 was 36 per 1,000 live births compared with 49 in 1939. The stillbirth rates are not comparable because the definition of a stillbirth has been changed, (from 24 weeks to 20 weeks gestation). The definition varies in many states and it is questionable whether reporting is complete. The neo-natal death rate has not been materially improved and the newborn, especially the prematurely born, still remains the problem which requires more attention and interest.

In 1944 there were 10,765 live births reported as compared with 11,258 in 1943. The birth rate however has remained

high-23.3 in 1943 and 23.2 in 1944.

MATERNITY HOSPITAL INSPECTIONS: In the past five months every hospital and maternity home has again been inspected. The nursing problem has become critical in many hospitals and several have been forced to close because nurses are not available. Despite personnel problems and inability to obtain materials for improving facilities the majority of hospitals have cooperated to the greatest extent possible in meeting standards as required by the law and in following recommendations. The report is now being compiled. Your committee urges that study of standards and recommendations be made by every hospital staff so that highest possible standards will be maintained and hospital facilities for care of mothers and infants will be further improved.

PRENATAL AND PREMARITAL LAWS: Your committee recommended in the 1944 report that these measures be sponsored by the Montana State Medical society. The prenatal bill was passed and this law became effective as of July 1. The physicians have been sent copies of the law and every physician should give this matter careful attention.

The prematital bill was defeated in the house but reconsidered and passed. However, it was referred to the judiciary committee in the senate and was killed in committee. This bill unfortunately was confused with the "gin marriage" bill and more educational work will be necessary if this bill is to receive more favorable consideration by the 1946 legislative assembly.

PLASMA BANK: In the 1944 report your committee recommended that study be made of feasibility of establishing a plasma bank under the hygienic laboratory of the state board of health. A study was made by the director of the hygienic laboratory of similar services in other states. The bill providing funds for establishing a plasma bank was passed. Some difficulty was encountered in finding adequate laboratory space but plans are practically complete to set up machinery for carrying out the law so that plasma will be made available throughout the state.

POSTGRADUATE EDUCATION: It was not possible to arrange a postgraduate program during the past year but your committee has recommended that this program be carried out again as soon as possible since physicians cannot travel to other medical centers at this time and opportunities for scientific archives at this time and opportunities for scientific archives are this time and opportunities.

tific meetings are limited.

.IMMUNE GLOBULIN FOR PREVENTION OR MOD-IFICATION OF MEASLES: This material has been made available through the American Red Cross to the state board of health and will be supplied without charge at request of any physician. No charge for the material can be made to the patient and it is hoped physicians will use the immune glob-ulin as a means of reducing complications and severity of measles especially in infants and young children and those

below par.

E.M.I.C.: Since May 1943, 4,345 cases including maternity cases and infants have been authorized for care with total obligations to physicians and hospitals to the amount of \$358,119 through June 1945. Both physicians and hospitals have co-operated but it is understood that this is an emergency program for the duration of the war and is to be terminated six months after the close of the war as set forth in the law. Your committee has given considerable attention to the policies governing administration of this program. The basic policies are determined by the U. S. Children's Bureau which administers these funds. The state board of health must for the most part adopt the policies as set forth by the U. S. Children's Bureau and has very few alternatives. A number of modifications have been made since the program was initiated not only as result of experience in operating the program but also as the result of advising the Children's Bureau of the recommendations made by your committee. The fee for maternity care has been in-creased, provisions have been made for additional fees in ex-ceptional cases and intercurrent conditions. Effort has been made to expedite authorizations and payment of claims to avoid unnecessary correspondence. The preparation of cost accounting statements by hospitals has resulted in better understanding of hospital rates in relation to costs, and more equitable adjustments have been made apart from this particular

The state board of health has taken exception to a number of the policies in the plan for the new fiscal year and your committee has made recommendations regarding policies which are not acceptable. Time does not permit review of these in this report but the physicians will be informed of any changes made. The state board of health is making every effort to administer the program in accordance with the highest standards of practice and in accordance with conditions in Montana,

It would be most helpful if the physicians enter as individuals, or through their local societies would refer matters relating to this program to this committee so that the committee could better interpret the problems and thereby serve more effectively. The Division of Maternal and Child Health has asked that the committee express to you the appreciation of the Division for the support which you have given to the program as a whole through your understanding, interest and active participation.

B. D. FARRAND, M.D., Chairman Amendments to By-Laws

The following amendments proposed to the by-laws were presented:

1. The chairmen of all standing committees shall be responsible for keeping minutes of all committee meetings and that each county or district society in the state be notified by the secretary of the state medical society of the action taken at the committee meetings at least thirty days before any meeting of the house of delegates.

ELLIS W. ADAMS, M.D., Secretary, Cascade County Medical Society.

This amendment was passed unanimously.

2. Upon the request of any delegate, any motion or resolution before the house shall be voted by roll call vote.

ELLIS W. ADAMS, M.D., Secretary, Cascade County Medical Society.

It was moved by Dr. Hurd and seconded by Dr. Durnin that this amendment be tabled because it was already covered by Robert's Rules of Order for Parliamentary Procedure. Unani-

mously passed.

3. Section 19—delete the words "the two immediate past presidents" and in lieu thereof place the words "and two members of the Association elected by the House of Delegates for a term of two years except that at the first election under this amendment one member shall be elected to hold office for one year and one for two years."

H. T. CARAWAY, MD.

Dr. Hitchcock moved and Dr. Hurd seconded that the

amendment be tabled. A standing vote was taken. Nine were in favor of tabling the amendment and eleven against. Dr. Berg made a motion that the amendment be amended to state that one man be elected to the executive committee instead of two. This was seconded by Dr. Walker but was withdrawn. The amendment as originally presented carried by a 12 to 9 vote.

The introduction of these three amendments was made on

July 14 and the voting was on July 15.

It was moved by Dr. Hurd and seconded by Dr. Farabaugh that the president appoint a committee of three to revise the constitution and by-laws. Passed unanimously.

Dr. Chester W. Lawson and Dr. F. W. Aubin, delegates from the Hill County Medical society, introduced the follow-

ing resolution: The Hill County Medical society has instructed us to voice an objection to the method used in handling the crippled children clinics. It is felt that the clinics should be presented under the auspices of the local medical society, and not independently of, and in competition with, the local profession."

Resolutions Committee

I. The House of Delegates of the Montana State Medical association has become aware of H. R. Bill 2969, introduced on April 19, 1945.

This body, representing the medical profession of Montana, feels that passage of the legislation contained in H. R. Bill 2969 would be harmful and should be opposed for the follow-

ing two reasons: 1. The proposed law would usurp for the secretaries of war and navy the function now reserved to the several states through their boards of medical and dental examiners. function is, namely, the determination of qualifications of those permitted to practice medicine and dentistry within the state.

By this proposed legislation the federal government would

exercise functions constitutionally reserved to the states. 2. Under this proposed legislation, no provision would be made for termination of a license, no matter how the conduct of the licentiate might conflict with the public interest. All licentiates at present are subject to state jurisdiction, but it is doubtful whether former officers would be so subject under this proposed resolution.

RESOLUTION Now, therefore, be it resolved, that the House of Delegates of the Montana State Medical association hereby expresses its

opposition to the passage of H. R. No. 2969;
That a copy of this resolution be submitted to the Montana Dental association and the Montana Public Health league;

That a copy of this resolution be introduced into the house of delegates of the A.M A. by the Montana delegate at the next following meeting. L. W. Brewer, M.D., Chairman

R. G. JOHNSON, M.D. T. F. WALKER, M.D.

RESOLUTION

II. The house of delegates of the Montana State Medical association, knowing of the very great need for additional hospital beds in the facilities at Galen, does hereby resolve:

That the request of the administration of the Montana State Tuberculosis sanatorium for state appropriation of \$521,000 for construction of an additional hospital building be supported by the Montana State Medical association;

That a copy of this resolution be submitted to the state com-mittee on postwar construction, of which the governor of the state is chairman.

L. W. Brewer, M.D., Chairman R. G. Johnson, M.D. T. F. Walker, M.D.

RESOLUTION

III. Whereas, for the past two days the delegates of the Montana State Medical society and their guests have been entertained in assembly and in banquet, and

Whereas, the entertainment has been of the finest quality and thoughtfully provided, and

Whereas, every consideration has been shown for the com-

fort and welfare of the delegates and their guests, Therefore, be it resolved, that the house of delegates express hereby, to the Lewis & Clark County Medical society, its hosts,

sincere appreciation for their hospitality, and

That a copy of this resolution be entered in the minutes of the house of delegates and also that a copy be submitted to the Lewis & Clark County society.

L. W. Brewer, M.D., Chairman
R. G. Johnson, M.D.
T. F. Walker, M.D.

It was moved by Dr. Hurd and seconded by Dr. Walker that the economics committee be commended for their excellent work in preparing the new fee schedule and their work in laying plans for prepaid medicine. Passed unanimously.

Necrology Committee
Dr. E. B. Maynard (H), Choteau, born 1872, died February 1945. University of Michigan, Homeopath Medical school, graduated 1898, licensed state of Montana 1913.

Dr. Louis L. Mayland, Great Falls, born 1871, died 1945. University of Minnesota, graduated 1896, licensed 1911.

Dr. Hiram Bryan Cloud, Wolf Point, born 1885, died November 1, 1944. Hunting accident. Chicago College of Medicine and Surgery, licensed 1925.
Dr. Gaylord Worstell, Big Sandy, born 1863, died August

11, 1944. Graduated George Washington university 1899,

licensed 1911.

Dr. Eugene Griffith Wilcox, Drummond, born 1894, died October 11, 1944. Carcinoma. Graduated Northwestern School of Medicine 1924, licensed 1924.

Dr. John Godfrey Thompson, Helena, born 1880, died February 15, 1945. Hypertension. Northwestern university 1906,

licensed 1907.

Dr. Carl Frederick Bassow, Fort Benton, born 1883, died 1945. Pneumonia. Graduated Jefferson Medical college, Philadelphia, 1912, licensed in state 1912.

Dr. Henry Waldow Power, Conrad, born 1879, died 1945. Carcinoma of lung. Graduated Northwestern University Med-

ical school 1903, licensed 1903.

Dr. Robert Wilson Getty, Deer Lodge, born 1868, died May 6, 1945. Heart attack at Gold Creek. Graduated University of Pennsylvania School of Medicine 1891, licensed 1893. F. D. HURD, M.D., Chairman

> A. R. Foss, M.D. H. W. GREGG, M.D.

All the above committee reports were accepted unanimously. There were no reports submitted for the following committees: Hospital, Medical Insurance and Legal Affairs, Postgraduate, Fractures, Industrial Hygiene, Medical Military Preparedness and Defense Activity, State Institutions, State District Committee for Special Business.

It was moved by Dr. Caraway and seconded by Dr. Tarbox that the state dues be raised to \$25 per individual. This car-

ried by a standing vote of 22 for and 0 against.

It was moved by Dr. Cashmore and seconded by Dr. Atkins that the state association pay its \$100 membership dues to the Public Health League of Montana for 1945 and allow the Public Health league to solicit individual members for further

funds this year. This was passed unanimously.

President J. C. Shields appointed Dr. J. H. Garberson and Dr. D. A. Atkins to conduct President-elect S. A. Cooney to the chair. He requested Vice President T. B. Moore to preside over the remainder of the meeting. Dr. Cooney responded to his induction as follows:

#### ADDRESS OF PRESIDENT-ELECT Dr. S. A. Cooney

Helena, Montana

As a matter of completing the formal record, I hereby accept your election of me as president of the Montana State Medical

Association for the year 1945-1946.

I am deeply humble in the presence of the honor you have conferred upon me, and ask from all of you your earnest cooperation and free and candid expression of your views at all times while I am your servant.

Basically, I have in mind:

1) That the Association, by all means within its power, extend to those members of the profession who have served in the armed forces of our country throughout the earth, all possible cooperation in their return to practice in our community. Despite our troubles at home, these men have made expenditures of strength, of fortune, of place and of opportunity in our behalf and in behalf of their fellow citizens generally, which cannot be compensated. They did well by us; let us do well

2) Protection of the profession against unjust attacks from politicians or from any others who fail to recognize the essential spirit with which all of us labor in the field of American medicine. The facts of our service, presented in a true light, are all we need at any time against any critic or criticism.

3) The elevation of the Association to a place in Montana

where its members and its opinions are respected, and it is recognized as a definite force for spiritual as well as physical bet-

terment.

In all of these things I need your prayers and your ready

Nominating Committee

The following report is submitted by the nominating committee of the medical association for consideration and action by the house of delegates:

For President-elect: Dr. Louis W. Allard, Billings, Dr. R. R.

Sigler, Bozeman.

For Vice President: Dr. Walter H. Stephan, Dillon, Dr. G. A. Jestrab, Havre.

For Secretary-Treasurer: Dr. R. F. Peterson, Butte, Dr. H.

T. Caraway, Billings.

For five names recommended to the governor of Montana for board of health appointment: Dr. T. F. Walker, Great Falls, Dr. L. W. Brewer, Missoula, Dr. F. I. Terrill, Galen, Dr. I. J. Bridenstine, Miles City, Dr. R. E. Ryde, Glasgow.

For Councilors: Dr. J. H. Garberson, Dr. Byron Tarbox, Dr. J. I. Wernham, Dr. T. R. Vye, Dr. E. A. Welden, Dr. R. G. Johnson, Dr. J. H Irwin, Dr F. E. Keenan.

The nominating committee of the Montana State Medical association submits the following names as candidates for ballot by election by the house of delegates for the terms of one and two years for the executive committee The candidate receiving the highest number of votes will hold office for two years and the one receiving the second highest number of votes will hold office for one year: Dr. J. C. Shields, Dr. J. H. Bridenbaugh, Dr. J. H. Garberson, Dr. T. F. Walker.

For director of Public Health league: Dr. James Flynn, Dr. J. C. Shields. F. F. ATTIX, M.D., Chairman

Election

Dr. A. R. Foss nominated Dr. M. A. Shillington as a candidate for president-elect. It was moved by Dr. Hurd and seconded by Dr. Berg that the nominations be closed. This carried unanimously. Dr. Allard requested that his name be withdrawn. Dr. Durnin moved and Dr. Caraway seconded that the rules be suspended to allow a standing vote, and Dr. M. A. Shillington was unanimously elected.

Dr. W. H. Stephan was elected vice president by a vote of

Dr. Caraway withdrew as a candidate for the secretary-treasurer office, and Dr. R. F. Peterson was elected by a unanimous ballot.

Dr. Durnin recommended that for the board of health appointments the five names submitted be elected unanimously. Dr. Danskin seconded the motion and it carried unanimously.

Dr. Tarbox withdrew his name as candidate for councilor and the following councilors were elected unanimously: Dr. J. H. Garberson, District 3; Dr. T. R. Vye, District 4; Dr. R. G. Johnson, District 6; Dr. J. H. Irwin, District 8.

Dr. J. H. Itwin, delegate to the A.M.A., and Dr. E. M. Gans, alternate delegate, elected in 1944, carry over until 1946.

Drs. T. F. Walker and J. H. Garberson withdrew their names as candidates for the exercutive committee. Dr. B. R. Tarbox was nominated from the floor. Dr. Shields was elected for the two year term, Dr. Tarbox for the one year term by the following ballot: Dr. J. C. Shields, 25; Dr. B. R. Tarbox, 18; Dr. J. H. Bridenbaugh, 9.

Dr. Shields withdrew his name as candidate for the office of director to the Montana Public Health league, and Dr. James

Flynn of Helena was elected unanimously.

It was moved by Dr. E. D. Hitchcock and seconded by Dr. F. F. Attix that the deepest appreciation of the Montana State Medical association be expressed to Dr. J. C. Shields for the extensive, efficient work that he conducted during his tenure of office. Passed unanimously.

The meeting was adjourned.

October, 1945 369

#### Montana State Medical Association Roster--1945

#### MEMBERSHIP BY DISTRICTS

	MEMBERSHIE DI DISTRICIS	
CA	SCADE COUNTY MEDICAL SOCIE	TY
Dr. Earl Hall, Pres Great Falls	Hall, E. LGreat Falls	*McGregor, J. FGreat Falls
Dr. Ellis W. Adams, Sec Great Falls	Hitchcock, E. D. Great Falls	McGregor, R. JGreat Falls
•	Holzberger, R. JGreat Falls	<b>→M</b> -DL-:  C   C C-  -
Allred, I. AGreat Falls	Howard, L. L Great Falls	McPhail, MalcolmGreat Falls
Adams, EllisGreat Falls	Hurd, F. DGreat Falls	*Nagel, C. EGreat Falls
Anderson, C. EGreat Falls	*Iohnson, A. CGreat Falls	*Peterson, C. HGreat Falls
Andrews, F. L. Great Falls Bateman, H. W. Choteau	Irwin, J. HGreat Falls	Richardson, R. B
Bateman, H. WChotequ	Keenan, F. EGreat Falls	Russell, Rosannah Fort Shaw
Blankenhorn, C. EGreat Falls	Keenan, T. MGreat Falls	Schemm, F. RGreat Falls
Bresce, C. J. Great Falls *Craigo, F. H. Great Falls	Larson, E. M. Great Falls	Setzer, G. W Malta Shephard, H. C. Flat River, Mo.
Crary, L. S	Little, C. F. Great Falls	Strain, Earle Great Falls
Davis, R. CGreat Falls	Logan, P. EGreat Falls	Templeton, C. F. Great Falls
Durnin, R. B	Lord, B. E. Great Falls	*Vasco, J. RGreat Falls
Fuller, H. WGreat Falls	Lord, B. E Great Falls MacGregor, J. C Great Falls	Walker, DoraGreat Falls
Fuller, H. W. Great Falls Gibson, H. V. Great Falls	*Magner, CharlesGreat Falls	Walker, T. FGreat Falls
Gleason, A. LGreat Falls	Maillet, L. L. Great Falls McBurney, L. R. Great Falls	*Waniata F K Great Falls
Greaves, I. PGreat Falls	McBurney, L. RGreat Falls	Weisgerber, A. L. Great Falls Williams, W. T. Malta
*Hall, C. MGreat Falls	McGregor, H. JGreat Falls	Williams, W. TMalta
CHC	OUTEAU COUNTY MEDICAL SOCI	erv
		on, SecTreasFort Benton
Dr. D. J. Cooper, Pres		on, Sec1 reasrort Denton
F	ERGUS COUNTY MEDICAL SOCIET	Υ
		*Gans, E. W. Harlowton
Dr. J. J. Elliott, PresLewistown	Dismona A B Stanford	*Gans Davi I I I I I I I I I I I I I I I I I I I
Dr. E M. Gans, V. PresHarlowton	Attix, F. F. Lewistown  *Dismore, A. B. Stanford  *Eck, Raymond Lewistown	Herring I H Lewistown
Dr. F. F. Attix, SecTreas. Lewistown	Flight I. I. Lewistown	Johnson, R. G. Harlowton
•	Freed. Hazel	Porter, E. S. Lewistown
Alexander, J. L. Winnett	Elliott, J. J. Lewistown Freed, Hazel Stanford Gans, E. M. Harlowton	*Gans, Paul J. Lewistown Herring, J. H. Lewistown Johnson, R. G. Harlowton Porter, E. S. Lewistown Welden, E. A. Lewistown
CI A	THE LO COLLEGE LIEDIOLI COOL	Torres &
	THEAD COUNTY MEDICAL SOCII Cairns, J. M. Libby Clark, C. A. Eureka Cockrell, E. P. Kalispell Conway, W. Q. Kalispell Dimon, John Polson Dodge, A. A. Kalispell Griffis, L. G. Kalispell Holcomb, M. D. Whitefish Huggins, H. D. Kalispell	Lees, A. T Whitefish Moore, T. B., Jr. Kalispell Munro, A. T. Kalispell Ross, F. B. Kalispell Simons, J. B. Whitefish **Stewart, R. M. Whitefish **Taylor, W. W. Whitefish Towne, R. L. Kalispell **Weed, V. A. Kalispell Wright, G. B. Kalispell
Dr. L. G. Griffis, PresKalıspell	Cairns, J. M. Libby	Lees, A. T
Dr. E. P. Cockrell, V. PresKalispell	Clark, C. A	Moore, 1. B., JrKalispell
Dr. H. D. Huggins, SecKalispell	Cockrell, E. PKalispeil	Munro, A. I
Dr. R. L. Towne, Treas. Kalispell	tonway, w. Q	Ross, C. D
*Borkon, MWhitefish	Dimer John Balan	+Convert D M
Boud Edith Whitefish	Dodge A A Kalispell	Taylor W W Whitefish
*Brown I. W. Whitefish	Griffie L. G. Kalispell	Towne R L Kalisnell
Brassett, A. J	*Holcomb. M. D. Whitefish	*Weed, V. A. Kalispell
Boyd, Edith Whitefish *Brown, J. W. Whitefish Brassett, A. J. Kalispell *Buens, M. O. Kalispell	Huggins, H. DKalispell	Wright, G. B. Kalispell
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	LLATIN COUNTY MEDICAL SOCIE	
Dr. E. R. Grigg, PresBozeman	*Craft, C. BBozeman	Scherer, R. G Bozeman
Dr. W. S. Bole, V. Pres Bozeman	*Eneboe, P. L. Bozeman	Seerley, C. C. Bozeman
Dr. R. E. Seitz, Sec. Bozeman	Grigg, E. R. Bozeman Heetderks, B. J. Bozeman	Seitz, R. E. Bozeman Sigler, R. R. Bozeman
Dr. R. E. Seitz, Sec,	*Kearns, E. JBozeman	Smith C S Bozoman
Bole W S Bozeman	Keeton, R. G	Whitehead C F Bozeman
Bole, W. S. Bozeman Bradbury, J. T. Willow Creek	Sabo, F. I. Bozeman	Smith, C. S. Bozeman Whitehead, C. E. Bozeman Williams, R. A. Bozeman
		,
	HILL COUNTY MEDICAL SOCIETY	
Dr. W. F. Hamilton, PresHavre	Aubin, F. W. Havre	Jestrab, G. A. Havre Lacey, W. A. Havre
Dr. G. A. Jestrab, V. Pres Havre	Benke, R. A. Chester Forester, W. L. Havre	Lacey, W. A
	Forester, W. L. Havre	Lawson, Chester Havre
Dr. Chester Lawson, SecHavre	Hamilton, W. F	MacKenzie, D. S
Almas, D. JChinook	Hamilton, W. F. Havre Hoon, A. S. Chinook Houtz, C. S. Havre	MacKenzie, D. S. Havre  *MacKenzie, D. S., Jr. Havre  McCannel, W. A. Harlem
Almas, D. JClimbox	riodiz, C. Sriavie	McCaimei, W. A. Commission
1	LAKE COUNTY MEDICAL SOCIETY	
	(Discontinued temporarily)	
*Brooke, J. M. Ronan	*Lipow, E. G. Ronan *Tanglin, W. G. Polson	*Teel, H. M. Polson Venneman, F W. St. Ignatius
*Brooke, J. M Ronan French, E. J Ronan	*Tanglin, W. G Polson	Venneman, F WSt. Ignatius
		שייבויע
	S & CLARK COUNTY MEDICAL SOC	ABI 1
Dr. S. A. Cooney, Pres. Helena	*Campbell, RobertHelena	Gamvan, E. L
Dr. O. M. Moore, SecHelena	Cashmore, W. F	Harrier Educha U-lana
Paula D. G. Tarranal	Cashmore, W. F. Helena Cooney, S. A. Helena *Farner, L. M. Helena	*Iumn C. F. Helena
Bayles, R. GTownsend Berg, D. THelena	Flinn, F. M. Helena	Gallivan, E.L
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Klein, O. G. Helena	*Mears, Claude	Helena	Nash, F.	
*Lindstrom, E. H	*Monserrate, D. N Moore, O. M	Helena	Shale, R. J	Helena
McElwee, W. R.	Morgan, R. M.		Aonearer, D. C.	Telena
White Sulphur Springs	Morris, R. W.			
· ·	ADISON COUNTY MEI	DICAL SOCIE	T'V	
	Burns, W. J		Dyer, R. H	CL : J
Dr. L. R. Packard, Pres. Whitehall	Clancy, D. F.	Ennis	Farnsworth, R. B.	Virginia City
Dr. R. H. Dyer, SecTreasSheridan	*Clancy, John		Packard, L. R.	Whitehall
MOLI	NT POWELL COUNTY	MEDICAL SO	•	
Dr. B. L. Pampell, Pres	Holmes, G. V.		O'Rourke, J. L	A 1 .
Warm Springs	Kargacin, T. J.	Anaconda	Pampel, B. L.	
	Knight, A. C.	Philipsburg	Place, B. A.	-Warm Springs
Anderson, G. ADeer Lodge	Long, W. E		Terrill, F. I.	Galen
Brewer, A. D. Galen	*Malee, J. J Noonan, J. H	Anaconda	Tyler, K. A.	Galen
Dunlap, L. GAnaconda			Unmack, F. L.	Deer Lodge
MUS	SELSHELL COUNTY M	EDICAL SOC	IETY	
Dr. R. T. O'Neill, PresRoundup	*Bennett, A. A.	Roundup	Fouts, E. R.	Ryegate
· · · · · · · · · · · · · · · · · · ·	Brogan, R. E.	Roundup	Lewis, G. A	Roundun
Dr. G. A. Lewis, SecRoundup	Crouse, S. A	Koundup	O'Neill, R. T	Roundup
NORTH	ICENTRAL MONTANA	MEDICAL SO	CIETY	
Dr. W. C. Robinson, PresShelby	DuBois, W. L.	Conrad	Paterson, W. F	Conrad
Dr. W. L. Dubois, SecTreasConrad	Elliott, L. L.		Robinson, W. C.	Shelby
Bosshardt, O. A Ontario, Calif.	Neraal, P. O.	Cut Bank	*Spatz, J. M.	Cut Bank
*Cannon, P. SConrad	Olsen, N. A		Whetstone, S. D.	Cut Bank
NORTE	HEASTERN MONTANA	MEDICAL SC	CIETY	
Dr. O. G. Benson, PresPlentywood	Habel, W. P		Morrow, T. M.	Scobey
	Knapp, R. D.	Wolf Point	*Peterson, W. M.	Plentywood
Dr. R. E. Ryde, SecTreasGlasgow	*Knierim, F. M.	Glasgow	Pronin, Arthur	Plentywood
Agneberg, N. O Glasgow	*Krogstad, L. T Larson, C. B	Glasgow	Reed, W. H Ryde, R. E	Glasson
Benson, O. G. Plentywood	Liest, L. J.	Fort Peck	*Schweizer, H. W	Ft. Worden, Wash.
Cockrell, T. L. Hinsdale	*Mittleman, E. J	Wolf Point	Smith, A. N.	Glasgow
, D.	ARK-SWEETGRASS MEI	DICAL SOCIET	ΓY	
	Cogswell, W. F.		March, J. A.	I ivia aceaa
Dr. P. L. Greene, Pres. Livingston Dr. A. M. Lueck, V. Pres. Livingston	Greene, P. L.	Livingston	*Paul, F. W.	Big Timber
Dr. E. M. Larson, SecTreas	★Harris, W. E.	Livingston	*Pearson, J. A	Livingston
Livingston	Larson, Eloise M	Livingston	Townsend, G. A.	Emigrant
Baskett; L. W. Big Timber	Leard, S. E.	Livingston	*Walker, R. E.	Livingston
Claiborn, D. RBig Timber	Lueck, A. M.	Livingston	Windsor, G. A	Livingston
SIL	VER BOW COUNTY ME		TY	
Dr. D. L. Gillespie, Pres Butte	James, H. H	Butte	Peterson, R. F	Butte
Dr. S. V. Wilking, Sec Butte	Kane, J. J	Butte	Poindexter, F. M.	
Dr. C. R. Canty, TreasButte	Kane, P. E.	Butte	Rodes, C. B.	
Atkins, D. A. Butte	*Kane, R. C Karsted, A	Butte	*Routledge, G. L. Saam, T. W.	
Canty, C. R. Butte	*Kroeze, R.	Butte	Schwartz, Harold	
*Carmichael, G. A. Butte	Lapierre, J. C.	Butte	Schwartz, S. E.	
Casebeer, H. L. Butte	Lhotka, J. F.	Butte	Shields, J. C.	Butte
*Casebeer, R. L. Butte	MacPherson, G. T. Matthews, Vida J.	Butte	★Sievers, A. R ★Steinberg, S. S	Buera
Colman, J. K. Butte	McGill, Caroline		Sievers, J. R. E.	
Frisbee, J. BButte	McMahon, E. S.	Butte	Smith, L. W	Polson
Garvey, J. E. Butte	Monahan, R. C	Butte	Spurck, P. T Stanchfield, H	Butte
Gillespie, D. LButte	*Monahan, R. C., Jr.	Butte	Stanchfield, H	Dillon
Gregg, H. W. Butte	Mondloch, J. L *O'Keefe, N. J	Butte	Stephan, W. H Thorkelson, Jacob	Russ
Hill, R. JWhitehall	Odgers, S. L.	Butte	Ungherini, V. O.	Butte
Horst, C. H. Butte	*Pemberton, C. W	Butte	Wilking, S. V	Butte
SOUTI	HEASTERN MONTANA		CIETY	
Dr. R. R. Randall, Pres. Miles City	*Dale, E.	Wibaux	*Lemon, R. G.	Glendive
Dr. B. R. Tarbox, V. Pres. Forsyth	Danskin, M. G.	Glendive	Lindeberg, S. B.	Miles City
Dr. I. J. Bridenstine, Sec. Miles City	Farrand, B. C Garberson, J. H	Miles City	Low, John E. Morrill, R. A.	Sidney
Beagle, J. SSidney	*Harper, R. D.	Sidney	Noonan, E. F.	Wihanx
Benson, R. D. Sidney	Haywood, Guy	Forsyth	Olson, S. A	Glendive
Blakemore, W. HBaker	Hogebohm, C. F.	Baker	Parsons, H. H.	Sidney
Bridenstine, I. J. Miles City	Howard, Elna M	Miles City	*Pratt, S. C. Randall, R. R.	Miles City
Craig, J. WCircle	Huene, H. J.	OLSY LLI	Kanuan, R. R.	ivilles City

Robbins, B. L	Sandy, B. B	Ekalaka	Thompson, J. R.	Miles City
Rundle, B. SCircle	Shillington, M. A		Weeks, S. A	
Runale, D. SCircle	Tarbox, B. R.		Winter, M. D	Miles City
WES	STERN MONTANA MEI	DICAL SOCIE	TY	
Dr. J. M. Nelson, PresMissoula	*George, E. K		*Murphy, J. E	Missoula
Dr. F. H. Lowe, V. Pres Missoula	*Gordon, D. A	Hamilton	Nelson, J. M	Missoula
Dr. J. L. Yuhas, SecTreas, Missoula	Haas, A. T		*Noble, P. C	Palsor
•	Hall, H. J	Missoula	*Ohlmack, J. P	
Alderson, L. R Missoula	Harris, W. E	Missoula	Pease, F. D	
Blegen, H. MMissoula	Hayward, Herbert	Hamilton	Peterson, R. L.	
Bourdeau, C. LMissoula	Holmes, J. T.	Missoula	Preston, S. N	
*Bourdeau, E. J Missoula	*Hesdorffer, M. B	Missoula	Rew, A. W	
Boyer, Esther L. Missoula	*Honeycutt, C. F	Missoula	Richards, J. L	
Brewer, L. W Missoula *Bussabarger, R. A Missoula	*Keys, R. W *Koessler, H. H	Missoula	Ritchey, J. P	
Doyle, WSuperior	Y NOESSIET, Pl. Pl	Wissoula	*Sale, G. G	
*Duffalo, J. A	King, W. N.		*Stephan, L. B	Missoula
*Fattic, G. F	Kintner, A. R Koehler, H. L		*Svore, C. R	Somer:
Farabaugh, C. L Missoula	Lowe, F. H.	Missoula	Tefft, C. C Thornton, C. R.	
Fennell, J. WMissoula	Marshall, W. J.	Missoula	Trenouth, S. M.	Missoula
*Ferret, A	McPhail, W. N.		*Weber, R. D	Missouit
Foss, A. R. Missoula	*Morrison W F	Missoula	Wirth, R. E.	Missoula
*Fredrickson, C. H Missoula	*Morrison, W. F *Murphy, E. S	Missoula	Yuhas, J. L.	Missoula
•				
	OWSTONE VALLEY ME			
Dr. P. E. Griffin, Pres. Billings	Dunkle, Frank		Morgan, H. G	
Dr. H. O. Drew, V. PresBillings	Farr, E. M		Morledge, R. V.	
Dr. H. T. Caraway, SecBillings	Feree, V. D.	Driager	*Morrison, J. D.	
Dr. A. E. Stripp, Treas	*Fisher, M. L Gerdes, Maude M	P:II:	Morrison, W. R.	
	Gordon, Wayne		*Movius, A. J., Jr Movius, A. J., Sr	D.IIIngs
Adams, E. M. :Red Lodge	*Graham, J. H.	Billings	Movius, W. R	Rillings
Allard, L. W. Billings	Griffin, P. E.	Billings	Nelson, C. H	Billings
*Anderson, M. O Harden	Hagmann, E. A.	Billings	Neville, J. V.	Columbus
Appelman, R. WWorden	Hall, E. C	Laurel	Olemik, J. M.	
Beltzer, C. EWashoe	Hammerel, A. L.	Billings	Powers, J. C.	
Benson, T. J Fromberg	*Hammerel, J. J.	Billings	*Rathman, O. C.	Billings
*Biehn, R. H. Billings	*Hayes, J. D		Richards, W. G.	Billings
Blackstone, A. V. Absarokee Bridenbaugh, J. H. Billings	Mammoth	Hor Springs	*Russell, Leland	
Bridenbaugh, J. HBillings	*Hodges, D. E.		Schubert, J. W	
*Brunkow, B. H. Billings	*Hynes, J. E	Billings	*Shaw, J. A	Billings
Caraway, H. T Billings	Irwin, C. E	Billings	*Smith, W. P	Columbus
Carey, W. R Rosebud, S. D.	*Knese, L. A Yellow	stone Valley	Soltero, J. R.	
*Chapple, R. R. Billings	Kronmiller, L. H		Souders, S. M	
Clark, A. E. Billings	Labbitt, L. H	Hardın	Stripp, A. E.	Billings
Culbertson, H. HCreston	Leeper, D. D	Laurel	Unsell, D. H	
*Currie, R. W. Billings	*Levitt, L	Worden	Vye, T. R	Laurel
*DeCanio, JohnCrow Agency DeMers, J. JHuntley	MacDonald, D. J		Weedman, W. F.	Billings
Drew, H. OBillings	*McHeffey, G. H *McIntyre, H. E		Werner, S. L Wernham, J. I	Billings
	Atticintyre, Fl. B.	Dillings	wernnam, J. I	Dillings
* Member in the Armed Forces of the	United States.			

### Alphabetical Roster Montana State Medical Association--1945

Adams, E. M. Red Lodge Adams, Ellis W. Great Falls Agneberg, N. O. Glasgow Alderson, L. R. Missoula Alexander, J. L. Winnett (Life member) Allard, L. W. Billings Allred, I. A. Great Falls Almat, D. J. Chinook Anderson, C. E. Great Falls Anderson, G. A. Deer Lodge *Anderson, G. A. Deer Lodge *Anderson, M. O. Harden Andrews, F. L. Great Falls
Alderson, L. R. Missoula Alexander, J. L. Winnett (Life member) Allard, L. W. Billings Allred, I. A. Great Falls Almas, D. J. Chinook Anderson, C. E. Great Falls Anderson, E. L. Fort Benton Anderson, G. A. Deer Lodge Anderson, M. O. Harden
Alexander, J. L. Winnett (Life member) Billings Allard, L. W. Billings Allred, I. A. Great Falls Almas, D. J. Chinook Anderson, E. E. Great Falls Anderson, E. L. Port Benton Anderson, G. A. Deer Lodge Anderson, M. O. Harden
(Life member) Allard, L. W. Billings Allred, I. A. Great Falls Almas, D. J. Chinook Anderson, C. E. Great Falls Anderson, E. L. Fort Benton Anderson, G. A. Deer Lodge Anderson, M. O. Harden
Allard, L. W. Billings Allred, I. A. Great Falls Almas, D. J. Chinook Anderson, C. E. Great Falls Anderson, E. L. Fort Benton Anderson, G. A. Deer Lodge Anderson, M. O. Harden
Allred, I. A. Great Falls Almas, D. J. Chinook Anderson, C. E. Great Falls Anderson, E. L. Fort Benton Anderson, G. A. Deer Lodge *Anderson, M. O. Harden
Allred, I. A. Great Falls Almas, D. J. Chinook Anderson, C. E. Great Falls Anderson, E. L. Fort Benton Anderson, G. A. Deer Lodge *Anderson, M. O. Harden
Anderson, C. E. Great Falls Anderson, E. L. Fort Benton Anderson, G. A. Deer Lodge *Anderson, M. O. Harden
Anderson, E. L. Fort Benton Anderson, G. A. Deer Lodge *Anderson, M. O. Harden
Anderson, G. ADeer Lodge *Anderson, M. OHarden
Anderson, G. ADeer Lodge *Anderson, M. OHarden
Andrews F. I. Great Falls
Appelman, R. W
Atkins, D. A. Butte
Attix, F. FLewistown

Aubin, F. W Baskett, L. W Bayles, R. G	Big Timber Townsend
Bateman, H. W Beagle, J. S	
Beltzer, C. E Benke, R. A	
*Bennett, A. A Benson, O. G	Roundup
Benson, R. D Benson, T. J	Sidney
Berg, D. T	Helena
Blackstone, A. V Blakemore, W. H.	Absarokee
Blankenhorn, C. E. Blegen, H. M.	Great Falls

+Burne M O	Kalianall
Durins, 141. O	Kanspen
Burns, W. J	Sheridan
*Burns, M. O. Burns, W. J. Bosshardt, O. A. *Bush, T. F. *Bussabarger, R. A. Cairns, J. M. *Campbell, Robert *Cannon, P. S. Canry, C. R.	Ontario. Calif.
*Buch T F	Butto
ADUSII, I. I. A	Dulle
*Bussabarger, R. A.	Missoula
Cairns, I. M.	Libbv
+Campball Pahare	Halana
Campben, Robert	Tielena
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Canty Ć R	Butto
Carry, C. R	Dill.
Caraway, M. I	Billings
Carev. W. R.	Rosebud, S. D.
+Commished C A	. B
ACarmichael, G. A.	Dutte
Casebeer, H. L	Butte
*Casebeer, R. L.	Butte
Casharana W E	T-T-1
Cashmore, W. F.	neiena
*Chapple, R. R	Billings
Claiborn, D. R.	Billings
Classes D. F	E.
*Cannon, P. S. Canry, C. R. Caraway, H. T. Carey, W. R. *Carmichael, G. A. Casebeer, H. L. *Casebeer, R. L. Cashmore, W. F. *Chapple, R. R. Claiborn, D. R. Clancy, D. F. *Clancy, John Clark, C. A.	Ennis
*Clancy, John	Ennis
Clark C A	Fureka
C. J. U. F. D.	72 1. 11
Cockreil, E. P	
Cockrell, T. L.	Hinsdale
Clark, C. A	Helena
Calman T V	, n
Coiman, J. K.	Dutte
Conway, W. O	Kalispell
Cooney S A	Halana
Cooney, 5. 7	i leiena
Cooper, D. J.	Big Sandy
*Craft. C. B	Bozeman
Craig I W	Cirolo
Ctate, J. W	CIFCIE
*Craigo, F. H	Great Falls
Crary, L. S.	Fairfield
Crouse S A	D J
Crouse, S. A	Kounaup
Culbertson, H. H.	Creston
*Currie, R. W.	Billings
*Dala E	Wil
ADale, E	wibaux
Danskin, M. G	Glendive
Davis, R. C.	Great Falls
*DoComia Taba	Carra A and
Decamo, John	Crow Agency
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DeMers, J. R	Kalispell
DeMers, J. J.	Huntley
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Gordon, wayne	Dinings
★Graham, J. H	Billings
Granuac I P	Great Falls
Cieaves, J. I	Oteat Lans
Greene, P. L.	Livingston
Grego H W.	Butte
C:((: D E	D:11:
Griffin, P. E.	Dillings
Griffis, L. G	Kalispell
Grice E D	Razaman
Grigg, E. K.	Dozeman
Haas, A. T	Missoula
Habel W/P	Poplar
7 T T T T T T T T T T T T T T T T T T T	D:11:
Hagmann, E. A	Dillings
★Hale, D. E	Butte
+Wall C M	Great Falls
^ [ ] all, C. M	
Hall, E. C	Laurel
Hall E I	Great Falls
77 (1 77 7	k 4.
. Hall, H. J	Missoula
Hamilton W. F.	Havre
TT I A T	D:11:
riammerel, A. L.	Dillings
★Hammerel, I. I	Billings
+Harner D D	Sidney
71 larper, R. D	
*Harris, W. E	Livingston
Harris W E	Missoula
-LTT 1: TT I	LJ . I
*Hawkins, I. L	rielena
*Havs. I. D	Mammoth
Has Savinas V	allowetone Park
not optings, i	enowstone rark
Hayward, H. C	Hamilton
Haywood Guy T.	Forsyth
77	P
Heetderks, D. J	Dozeman
Herring, J. H	Lewistown
Herring, J. H	Lewistown Helena
Herring, J. H Hershey, Edythe	Lewistown Helena
Hershey, Edythe *Hesdorffer, M. B	Helena Missoula
Herring, J. H Hershey, Edythe *Hesdorffer, M. B Hill. R. J.	Lewistown Helena Missoula Whitehall
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BEDORT OF THE COLLEGE AND		
REPORT OF THE FOURTH ANN	UAL MEETING Flathead	Mrs. F. B Ross

#### OF THE WOMEN'S AUXILIARY TO THE MONTANA STATE MEDICAL ASSOCIATION Officers

\_\_\_ Mrs. J. M. Nelson President . Mrs P. E. Griffin President-elect 1st Vice President \_\_\_\_\_\_ Mrs I. J. Bridenstine
2nd Vice President \_\_\_\_\_\_ Mrs, F. B. Ross Mrs. W. E. Harris

i reasurer	
	tee Chairmen
Legislation	Mrs. T. L. Hawkins
Program	Mrs. L. W. Brewer
	Mrs. R. V. Motledge
Press and Publicity	Mrs. M. G. Danskin
Bulletin	Mrs. Jacob Thorkelson
	Mrs. R. C. Davis
Hygeia	Mrs. W. F. Weedman
	n

County Presidents							
Cascade	Mrs	E.	M. Larson				
Silver Bow	Mrs.	J.	C. Shields				
Yellowstone Valley	Mrs.	Ċ.	H. Nelson				
Southeastern M	rs. J.	Η.	Garberson				

Tathead					
ewis & Clark					
Vestern Montana	Mrs	L.	A.	Ald	erson

The meeting of the board of directors of the Women's Auxiliary to the Montana State Medical association (which took the place of the fourth annual meeting) was called to order by the president, Mrs. J. M. Nelson, in Helena, July 15, 1945

In the absence of the secretary, Mrs. W E. Harris, Mrs.

In the absence of the secretary, Mrs. W. E. Flaris, Mrs. I. J. Bridenstine was appointed acting secretary.

Mrs. D. T. Berg of Helena welcomed the members of the auxiliary and announced place of meetings and entertainment.

Mrs. E. M. Larson reported for the committee which approved the minutes of the last session of the convention held July 14, 1944.

Annual reports of the state officers, committee chairmen, and county presidents were called for by the president and presented

to the assembly. The historian, Mrs. I. J. Bridenstine, presented the history of the organization to date and asked the members to look over

A letter of resignation was read from the president-elect, Mrs. P. E. Griffin, and regretfully accepted. (Conunued on page 377)

the books.



Serves the MINNESOTA, NORTH DAKOTA,

Medical Profession of SOUTH DAKOTA AND MONTANA

Official Journal of the American Student Health Assn., Great Northern Railway Surgeons' Assn., Minneapolis Academy of Medicine, Montana State Medical Assn., North Dakota Society of Obstetrics and Gynecology, North Dakota State Medical Assn., Northwestern Pediatric Society, Sioux Valley Medical Assn., South Dakota Public Health Assn., South Dakota State Medical Assn.

#### ADVISORY COUNCIL

North Dakota State Medical Assn.

Dr. James F. Hanna, Pres.

Dr. A. E. Spear, Pres.-Elect Dr. L. W. Larson, Secy. Dr. W. W. Wood, Treas.

North Dakota Society of Obstetrics and Gynecology

Dr. E. H. Boerth, Pres. Dr. Paul Freise, Vice Pres. Dr. G. Wilson Hunter, Secy.-Treas.

Minneapolis Academy of Medicine

Dr. Ernest R. Anderson, Pres.

Dr. J. O. Arnson Dr. D. S. Baughman Dr. Ruth E. Boynton Dr. Gilbert Cottam Dr. H. S. Diehl Dr. L. G. Dunlap Dr. Ralph V. Ellis Dr. W. A. Fansler Dr. A. R. Foss

Dr. Thomas J. Kinsella, Treas.

Dr. Jay C. Davis, Vice Pres. Dr. Cyrus O. Hansen, Secy.

South Dakota State Medical Assn.

Dr. William Duncan, Pres.

Dr. F. W. Howe, Pres.-Elect Dr. H. R. Brown, Vice Pres.

Dr. Roland G. Mayer, Secy.-Treas.

South Dakota Public Health Assn.

Dr. J. M. Butler, Pres. Dr. C. E. Sherwood, Vice Pres.

Dr. Gilbert Cottam, Secy.-Treas.

Sioux Valley Medical Assn. Dr. D. S. Baughman, Pres.

Dr. Will Donahoe, Vice Pres.

Dr. R. H. McBride, Secy. Dr. Frank Winkler, Treas.

Montana State Medical Assn.

Dr. S. A. Cooney, Pres. Dr. M. A. Shillington, Pres.-Elect

Dr. R. F. Peterson, Secy.-Treas.

Northwestern Pediatric Society

Dr. G. B. Logan, Pres.

Dr. Geo. Kimmel, Vice Pres.

Dr. Northrop Beach, Secy. Treas.

Great Northern Railway Surgeons' Assn.

Dr. W. W. Taylor, Pres. Dr. R. C. Webb, Secy.-Treas.

American Student Health Assn.

Dr. Ralph I. Canuteson, Pres.

Dr. Glenadine Snow, Vice Pres.

Dr. G. T. Blydenburgh, Secy.-Treas.

#### BOARD OF EDITORS

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Dr. James M. Hayes Dr. A. E. Hedback Dr. E. D. Hitchcock Dr. R. E. Jernstrom Dr. A. Karsted Dr. L. W. Larson Dr. W. H. Long Dr. O. J. Mabee Dr. J. C. McKinley

Dr. Martin Nordland Dr. J. C. Ohlmacher Dr. K. A. Phelps Dr. C. E. Sherwood Dr. M. A. Shillington

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LANCET PUBLISHING CO., Publishers, 84 South Tenth Street, Minneapolis 2, Minnesota

MINNEAPOLIS, MINNESOTA, OCTOBER, 1945

#### THE MEDICAL "CORRELATOR"

The general practitioner of medicine has been colorfully written up in book and story. He has been extolled as a kindly, unselfish and resourceful person who always responded day or night with that indefatigable vigor characteristic of pioneers and frontiersmen who refused to recognize the word "can't" in any emergency. His bravery appealed to men; his sympathetic understanding to women; and his helpfulness in trouble was recognized and appreciated by all. He has been referred to as a "doctor of the old school" leaving the impression that he belonged to the distant past and that general practitioners no longer exist. With little wonder he may be thought of as belonging to a vanishing race.

Fifty years ago he constituted the overwhelming majority of the profession and those doing referred work were few. That is no longer true. In the larger cities it is difficult for a newly arriving family to find a gen-

eral practitioner. Mostly there are specialists who limit their work to a certain field, which has given rise to the distinction that they know more about less while the general practitioner knows less about more. Reference to hospital staff classifications will prove the contention that doctors, with rare exceptions, are specialists. Clinics in like manner publish a departmentalized staff membership.

What's to become of the general practitioner who knows less about more, he who so often has called specialists in consultation? Why not reverse the process and let him be called by the specialists to piece together their findings, and if everyone must be designated by some high sounding title, the term "correlator" might be adopted. Every family should have one. If everyone insists on going to a specialist he could be called a specialist in correlation to whom they might apply for a gathering of the conclusions before treatment is instituted on an all-inclusive scale.

**OCTOBER**, 1945

#### COLLEGE HEALTH SERVICE

Current discussions of the health of young Americans, particularly men of military age, dwell upon the need for new health programs. Until existing tried agencies are developed to capacity, this demand for new implements is not justified.

Among these tried agencies are some 200 college student health departments organized since 1908 and serving in normal times a half million potential leaders.

The activities of all these health services are essentially the same: routine physical examination of students to appraise their health status, advice on correction of remediable physical defects and improper health habits, health education, participation in physical exercise and in campus sanitation programs and, in most schools, variable facilities for emergency medical care.

The good results accruing from these programs are limitless and bounded only by the sympathy of the college administration and the earnestness and quality of training of the health service personnel. Every student attending a college in which there is a modern health service should carry away with him an appreciation of the importance of rationally applied preventive medicine, an improved health status and certainly better discrimination in selecting high class medical service.

A disproportionate number of physicians has been diverted from college health services during the war for two chief reasons: a majority of college health physicians are in the younger age groups, and most colleges suffered heavy losses in enrollment. The need for suitably interested and trained physicians, and other personnel, in college health services is great. The work offers opportunities for the highest type of preventive and therapeutic medicine. The opportunities for clinical research are limitless.

Full utilization of existing college health services and extension of many of their features to the secondary schools would do much toward solving the problem of better health for American youth.

RALPH I. CANUTESON, M.D., President, American Student Health Association

#### MEDICAL ART SHOW

The National Medical Art Show, sponsored by Modern Medicine, a medical publication, representing the work of twenty-six medical artists, was on display during the month of August at The Museum of Hygiene and Medicine, the Mayo Foundation. While the current work of artists associated with medical schools and clinics and hospitals evoked great interest among the medical profession, the historical exhibit showing the progress of medical art from earliest times of Max Broedel also attracted many observers. Vera Morel, the medical artist at Tulane University, who prepared the exhibits, showed examples of the parchment manuscripts which provided the first graphic representation of human anatomy; drawings from Persian manuscripts; and wood cuts from the Fasciculus Medicinæ, a book printed in 1491. A sample of the "broadsides" prepared for medical students and the public, about 1499, was also on display. Original exhibits of the work of Max Broedel were a loan from his daughter, Elizabeth Broedel, a

medical illustrator with the Women's Clinic New York Hospital.

The work of Russell Drake, for many years the medical artist with the Mayo Clinic, was of particular interest to Rochester. Among his exhibits was a group of drawings showing the various stages from the original sketch made beside the surgeon as he operates, to the finished drawing.

Other exhibiting artists included Theodora Bergsland of Western Reserve University, who once studied at the Mayo Clinic; Annette Burgess, of the Wilmer Institute, Johns Hopkins Medical School; Mildred Codding of Peter Bent Brigham Hospital, Lucille Cassell and Mary Dixon of Northwestern University; James F. Didusch, Carnegie Institute of Washington, and Johns Hopkins Medical School, Armin Hemberger, Yale University School of Medicine, Jean Hirsch, University of Minnesota, Edna Hill, University of Pennsylvania Medical School, Natt Jacobs, University of Rochester School of Medicine, Tom Jones, University of Illinois, Helen Lewis Lous, The Lahey Clinic, Muriel McLatchie, Massachusetts General, Janet McLaughlin, Eloise Hospital, Gladys McHugh, University of Chicago, E. Vardell Mc-Nett, Lankenau Hospital, Wm. Brown McNett, The Blakiston Co., Etta Piotti, Harvard Medical School, W. C. Shepard, W. B. Saunders Co., Ralph Sweet, University of California Medical School.

Opening September 23rd Philadelphia at the College of Physicians, the exhibit will run until October 20.

(Received too late for inclusion in September issue)
Duluth, Minnesota, August 24, 1945
The Journal-Lancet,

James Gray, in his column appearing in our paper two days ago, sounded the grief that is in all our hearts over the passing of Dr. Mabel Ulrich. And since she wielded such a goodly influence over the LANCET in recent years, as editorial adviser, I ask permission to express to you and your readers something of the loss that is ours.

Just before me is the August Lancer with her "Capital Punishment for Capitals" editorial. There is an overabundant medical literature. "Capital punishment" should be visited upon much of it.

Dr. Mabel's work was far from finished — in the many fields in which she pleaded with our profession (and others) for a deeper appreciation of good writing and living. Now that she is gone we recall that we seldom went out of our way to acknowledge our appreciation of her and her magnificent talents. Adios, brave and courageous citizen, writer and physician.

E. L. TUOHY, M.D., President, Minnesota State Medical Society

The American Board of Ophthalmology has postponed the Chicago October examinations until January 18 through 22.

The Mid-West Clinical society with headquarters in Omaha, will hold its annual session October 22 through 26. The secretary-director of clinics is Dr. Roy W. Fouts, 1031 Medical Arts Building, Omaha 2, Nebraska.

## LIST OF PHYSICIANS LICENSED BY THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS JULY 13, 1945 (June Examination)

. I É # . D	JULY 13, 1945 (June Examinat	ion)
Name	School U. of Tenn. M.D. 1943	Address
Ackerman, Robert Featherston	U. of Minn. M.B. 1945	1550 Fairmoune Aug. Se Daul 5 Minn
Alden, John Fredolph	U. of Minn. M.B. 1945	North Branch Minn
Anderson, Flarry J	U. of Ill. M.D. 1943	Mayo Clinic Rochester Minn
Bartholomae Warren Max	U. of Minn. M.B. 1945	459 W. Wabasha, Winona, Minn
Belshe, Joseph Charles	_U. of Minn. M.B. 1945	806 Division St., Northfield, Minn.
Benson, Lyle Myrvan	.U. of Minn, M.B. 1945	Canby, Minn.
Bergendahl, Emil Henry	_U. of Minn. M.B. 1945	St. Joseph's Hospital, Milwaukee, Wis.
Bohn Donald George	U. of Minn. M.B. 1945	4625 Nicollet Ave. Minneapolis 9 Minn
Borgen, Alfred Edwin	U. of Minn. M.B. 1945 U. of Minn. M.B. 1945	Culver, Minn.
Breneman, James Chester	_U, or Minn, M.D. 1947	Onerburn, Iviinn.
Brown, Spencer Franklin	II of Mich M D 1943	706 Delaware St. S.E., Minneapolis 14, Minn.
Cenic M Elizabeth	U. of Minn. M.B. 1945	Mayo Clinic, Rochester, Minn. 510-15th Ave. S.E., Minneapolis 14, Minn.
Davis Tom II	_U. of Minn. M.B. 1945	Wadena, Minn,
DeLand. Clyde LeRoy	_U. of Wis. M.D. 1943	367 Champion St., Battle Creek, Mich.
Deranleau, Robert Francis	_U. of Minn. M.B. 1945	367 Champion St., Battle Creek, Mich. Northwestern Hospital, Minneapolis 7, Minn.
Dickman Roy Willard	_U. of Minn. M.B. 1945	.2/10 Longfellow Ave. S., Minneapolis 7 Minn
Dille, Donald Everett	_U. of Minn. M.B. 1945	Dassel, Minn.
Doms, Vernon Albert	U. of Minn. M.B. 1945	Woodstock, Minn.
Drake, Robert McCall	_N. Y. Med. Coll. M.D. 1945	4751 Girard Ave. S., Minneapolis 9, Minn.
DuBois, Julian Faville, Jr.	_U. of Minn. M.B. 1945	721—8th St. Bismarch N. D.
Ely Robert Stewart	U. of Minn. M.B. 1945	212—4th Ave. S., South St. Paul, Minn
Fearing James Edward	_U. of Minn. M.B. 1945	.536—11th St. So., Virginia, Minn.
Feinberg Samuel Burton	_U. of Minn. M.B. 1945	.916 Newton Ave. N., Minneapolis 11, Minn.
Feldman Seymour Irving	"U. of Minn. M.B. 1945	801 Huron St. S.E., Minneapolis 14, Minn.
Fliehr Richard Reid	_U. of Minn. M.B. 1945	1810 Bryant Ave. S., Minneapolis 5, Minn.
Flynn, Louis Leo, Jr.	_U. of Minn. M.B. 1944	523—8th Ave. N., South St. Paul, Minn.
Fortier, Quincy Ernest	U. of Minn. M.D. 1944	2109 Larpenteur Ave. W., St. Paul, Minn. 1572 Portland Ave., St. Paul 5, Minn.
Fox, James Rogers	U. of Minn. M.B. 1945	1812 Portland Ave., St. Paul 5, Winn,
Canal Dishard Conf	U. of Minn. M.B. 1945	505 S. Cretin, St. Paul 5 Minn
Chala Anthony Carroll	U. of Minn. M.B. 1945	3000 James Ave. S., Minneapolis 8, Minn
Clark Warran Carloton	U of Minn. M.B. 1945	/// Dayton Ave., St. Paul Minn
Classes Jaka W	LL of Minn M.B. 1945	Swanville, Ivlinn
Casisaasi Semiou lohn	1) or Winn. W.D. 1942	200 Kidge St., Honwood, Mich.
C: X X-1-:- Y	11 of Winn M.B. 1942	1410 lames Ave. iv., Minneapoils 11 Minn
Green, Cloid Darryl	of Minn, M.D. 1947	1526 S. Main Ave., Sioux Falls, S. D. 2939 Polk St. N.E., Minneapolis 13, Minn.
Haberle, Charles Albert	II of Minn MB 1944	1736 Penn Ave. N., Minneapolis 11, Minn.
U U 17	I J of Minn. M.B. 1945	.1121—10th St. S.W., Rochester, Minn.
LY.J Dhilin Carl	11 of Minn. M.B. 1942	Cambridge, iviinn,
Litual Common Allon	1) of Minn. M.D. 1942	1000 Dayard Ave., St. Paul J. Winn.
LI Danid Carl	1) of Minn. M.B. 1944	1519 Dixpy Ave., Demidii, Ivlinn.
Huber, Robert W.	_U. of Minn. M.B. 1945	107 Homewood Dr. Fairmant Minn
Hunt, William	_U. of Minn. M.B. 1945	5038—34th Ave. S., Minneapolis 6. Minn
Jensen, Louis Christian, Jr.	_U. of Minn. M.B. 1945 _U. of Minn. M.B. 1945 _U. of Minn. M.B. 1945	RFD No. 2, Benson, Minn.
T 1	II of Winn W.D. 1943	./17 Sherwood Ave., St. Paul 6, lylinn.
I	11 of Minn. (VI.D. 1942)	Dene Plaine, Minn.
Karon, Allan Burton	_U. of Minn. M.B. 1945 _U. of Minn. M.B. 1945	Caphy Minn
Kelley, Vincent Charles	II of Minn W B 1943	. ZZI J St. Clair Ave., St. Paul 3. Minn
Kelly, William Daniel	II of Minn. M.B. 1945	.5729 Michigan Ave., St. Louis 11, Mo.
Knoche, Harvey A., Jr.	II of Minn. M.B. 1945	Adrian, Minn.
Kotval, Russell J.		
Koza, Donald Warren	U. of Minn. M.B. 1945	5047 Gladstone Ave. S., Minneapolis 9, Minn.
Kucera, William John, Jr.	U. of Minn, M.B. 1942	1245 Oliver Ave. N., Minneapolis 11, Minn.
Landa, Marshall	TT of Minn MR 1945	Elgin, Minn.
Larson, Oliver Edward Henry Lee, Madison Johnson, Jr	Tulane U. M.D. 1944  _U. of Minn. M.B. 1945	Mayo Clinic, Rochester, Minn.
Leider, Allan Richard	U. of Minn. M.B. 1945	1015 Beech Ave., St. Paul 6, Minn.
Lerner, Aaron	11 of Minn M.B. 1945	-827 Uliver Ave. N., Minneapolis 11. Minn.
Lie, Dagfinn	_U. of Minn. M.B. 1945	risner, iviinn. Winnebago, Minn
Lindgren, Verner V., Jr.	U. of Minn. M.B. 1945	1614 Penn Ave. N., Minneapolis 11, Minn.
Litin, Edward Mortimer	11 of Minn M.B. 1945	-202/ Kenwood Pkwy., No. 211, Minneapolis 5.
Loomis, Earl Alfred Jr.	II of Minn MR 1944	-2630 E. Ist St., Duluth 5, Minn.
Louisell, Charles Tallon Lund, George B	II of Minn MR 1945	-Clarkfield, Minn.
Lundsten, Leslie Charlton	7 T C TU RA D 1044	Defresda Mospital St Paul I Minn
MacDonald, John Walker	U. of Minn. M.B. 1945	1932 Humboldt Ave. S., Minneapolis 5, Minn. 1720 W. 31st St., Minneapolis 8, Minn.
Maloney, William Farlow	_U. of Minn. M.B. 1949	11/20 W. Fist St., Winneapolis 8, Minn.

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Name	School	Address
Mandel, Sheldon Charles	U. of Minn. M B, 1945	1001 Name A by by one sty
Maunder, John Blackmore	U. of Minn. M.B. 1945	325 Grand St., Ft. Atkinson, Wis.
McGeary, George Daniel	U. of Minn. M B. 1944	329 Grand St., Ft. Atkinson, Wis. 5045 Garfield Ave. S., Minneapolis 9, Minn. Mayo Clinic, Rochester, Minn.
Meadows, James Allen, Jr	Tulane U. M.D. 1944	Mayo Clinic Rochester Minn
Muller, John Joseph	D. of Mind, M.D. 1945	Hingham Mana
Nelton David John	11. of Minn. M.B. 1945	500 Garfield Co. Ai. XII
Nelson, Paul Andrew	LJ. of Minn. M H. 1945	3110-Sth Aug C Minneration Minne
Newcomb Carl E.	D. of Minn, M.B. 1945	Good Samarian Manial Lands C. C.
Newman, John Anderson	U. of Minn. M.D. 1943	1717 W Platinum Ce Buses Marie
Nimlos, Kenneth U	U. of Minn, M.B. 1945	Stephen Minn
Nimlos, Lenore Ostergren	U. of Minn. M B. 1945	Rt. 7, Lake Gervais, St. Paul, Minn.
D'Heige John Charles	1) of ill N(1) 1934	Ca Incombia Liberated Co. D. Lo. 14
O'Brien, William Austin, Jr	U. of Minn, M.B. 1945	
Palm, Ernest Theodore	U. of Minn, Nl.B. 1945	
Paulson, Eric Randolph	U. of Minn. M.B. 1945	Tuttle Lake, N. D.
Peik, Donald John	U. of Minn. M B. 1945	Brownton, Minn.
Peterson, Willard Hall	U. of Minn. M.B. 1945	519 Marshall Ave. N., Litchfield, Minn.
Patarsan William H	11. of Alinn, M.B. 1947	1447 Chalmafaul Ca. Ca. Daul 9 144
Plasha, Matthew Karl	U. of Minn. M.B. 1945	314 University Ave. SE, Minneapolis 14, Minn.
Rall, Joseph Edward	Northwestern M.B. 1944, M.L	D. 1945 Mayo Clinic, Rochester, Minn.
Reitmann, John Henry	U, of Minn. M. B. 1944	908 Bush St , Red Wing, Minn.
Reizman, Bert	U. of Minn. M.B. 1945	874 Linwood Ave , St. Paul 5, Minn
Rozycki, Anthony Thomas	U. of Minn. M.B. 1945	Blackduck, Minn.
Runquist, John Manley	U. of Minn. M.D. 1945	211 Kent Rd., Duluth, Minn.
Sandeen, Robert McFariane		126 N. Everett St., Stillwater, Minn. 750 Main St., Hackensack, N. I.
Schnugg, Prancis Joseph	II of Change Buch MD 15	140Mayo Clinic, Rochester, Minn,
Skogerboe, Rudolph Benjamin	11 of Mine MR 1045	Mayo Clinic, Rochester, Minn,
Spencer, Bernard James	II of Ming. M.B. 1945	Din Fred M.
Spencer, Dernard James	U of Minn MB 1945	Ancker Hospital, St. Paul 1, Minn.
Storagel John Philip	U. of Minn. M.B. 1945	1200 Pitts St., Alexandria, Va.
Strouth, Bernard Peter	U. of Minn. M.B. 1945	De S Farrhaule Minn
Stutzman, Francis Lloyd	U. of Minn. M.B. 1945	Newport Minn
Sweeter Theo Hippins Ir.	U. of Minn. M.B. 1945	
Thiem, Chester Ekholm	U. of Minn. M.B. 1945	Gibbon Minn
Tichy Fae Yvonne	U. of Minn, M.B. 1944	
Tillotson, Irving Gray	U. of Minn. M.B. 1945	2264 Commonwealth Ave., St. Paul 8, Minn
Twomey, John Edward	U. of Minn. M.B. 1945	- 647 Thomas Ave, St. Paul 4, Minn.
Werner, George	U. of Minn. M.B. 1942. M D	). 1943 1239 Russell Ave. N. Minneanolis 11. Minn
Whiting, Adolph Martin	U. of Minn, M.B. 1945	
Williams, Walter Samuel	Tulane U. M.D. 1941	
Wisness, Osmund Arthur	U. of Minn. M B. 1945	
Wood, George F., It.	Temple U. M.D. 1944	112-4th Ave. S.W., Waterrown, S. D.
Wood, Newell Edwin	U. of Minn. M.B. 1945	725-4th Ave N., Valley City, N. D.
Yaeger, John J.	U. of Minn. M.B. 1945	Sanborn, Minn.  1301 N.E. Jefferson St., Minneapolis 13, Minn.
Zaworski, Leo Albert	Marquette U. M.D. 1944	
	RECIPROCITY CA	NDIDATES
Anderson, Gordon Arnold	U. of Minn. M.B. 1934, M.D	). 1935 Deer Lodge, Mont
Cole, Frank Abraham	L.I.Col. of Med. M.D. 1934 .	
Radl. Cvril Joseph	Marquette U. M.D. 1932	2746 Stinson Blvd . Minneapolis 13. Minn.
Skroch, Eugene Edward	U. of Wis. M.D. 1943	Mayo Clinic, Rochester, Minn.
Watts, Campbell Franklin	U. of Iowa M.D. 1943	
	NATIONAL BOARD	CANDIDATE
Morrow, I. Robert	U. of Buffalo M.D. 1943	Mayo Clinic, Rochester, Minn.
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WOMEN'S AUXILIARY (Continued from page 373)

Dr. J. P. Ritchey, chairman of the advisory board to the auxiliary, addressed the auxiliary on the relationship between it and the advisory board and the obligation to the Montana State Medical association. He presented from the advisory board a written outline of suggestions for revision of the present constitution. The board urged the adoption of a state project.
Dr. J. C. Shields, president of the state medical association,

emphasized streamlining the organization and eliminating nonessentials. He suggested making the directive groups small enough to work efficiently. He also urged a postwar project. Mrs. H. W. Peterson, president of the Public Health League

of Montana, gave a most interesting review of the year's activities in the league and suggested the auxiliary be formally represented in the league.

Dr. B. K. Kilbourne, of the state health department, spoke at the Sunday morning session upon the health needs of the state and the new full-time health units set up by the last legislature. He asked the auxiliary to take an active part in promoting health education in the various communities of the state.

Mmes. E. M. Larson, D. T. Berg and J. P. Ritchey were appointed to inspect the minutes of the last day's meeting.

The following names for officers for the year 1945-46 were presented by the chairman of the nominating committee, Mrs

For president, Mrs. I J. Bridenstine, Terry.
For president-elect, Mrs. Harold Schwartz, Butte. For 1st vice president, Mrs. Roy Morledge, Billings. For 2nd vice president, Mrs. F. B. Ross, Kalispell.

For treasurer, Mrs. A. A Dodge, Kaluppil, For secretary, Mrs. H. T Caraway, Billings For directors (2 year term), Mrs. A C. Knight, Phillipsburg, Mrs. R. W. Morris, Helena; (1 year term), Mrs. F F. Attx, Lewistown (completion of the term of Mrs. Harold Schwater) The meeting was adjourned with Mrs I. J. Bridentsine, the

new president, in the chair.

MRS. W. E. HARRIS, Secretary MRS. J. M. NELSON, President

### News Items

Albert J. Bateson, a soldier in Seattle, has appealed to the Grand Forks doctor who treated him some years ago and whose name he has forgotten. Any reader whose practice was in that city and who has soldier Bateson's name on his records will confer an appreciated favor by so advising H. W. Fredericks, Grand Forks Chamber of Commerce who will forward information.

Elmer H. Bobst, Nutley, New Jersey, retired president of Hoffmann-LaRoche and Roche-Organon pharmaceutical corporations, has been elected chairman of the executive committee of the board of directors of the American Cancer society.

Dr. Jas. J. McCabe, Helena, Montana, captain, in army service for three years, part of the time in Africa, France and Germany, for which service in surgery he was awarded the bronze star, has been home with his family for a month and was at his father's deathbed.

North Dakota state medical center advisory council includes in its membership Drs. Geo. F. Campana of Bismarck, state health officer as an ex-officio member and Dean Harley E. French of the University medical school who serves as secretary. Dr. Jno. H. Moore, Grand Forks, represents the state medical association.

Dr. B. B. Sedlacek, formerly a North Dakota hospital superintendent and more recently head of Indian hospitals in Arizona, has relieved Dr. M. K. Mirhan, now on sick leave, at Sioux Sanatorium, Rapid City, So. Dak.

Dr. Thomas Hall Shastid, Duluth, 79-year-old physician, has contributed to the country's growing mass of medical miscellany a voluminous self-revealing book, My Second Life.

Technical sergeant Jas. Hagen of Moorhead, Minnesota, son of Dr. Olaf J. Hagen, who was reported missing in a Liberator plane over Lynz, Austria, July 25, 1944, was declared early in August 1945 "killed".

Dr. Everett H. Lindstrom, Helena, major in the army, told fellow members of the Kiwanis club of his city about his experiences in thirty-six months of south Pacific jungle combat service. Dr. Lindstrom practiced in Helena for fourteen years before joining the army. He left September 15 for three months graduate work in surgery at the New York Polytechnic.

## Necrology

Dr. Chas. H. Patterson, 60, Fargo, North Dakota, member of the staff of veterans hospital in that city, died unexpectedly August 8 at that hospital, to which he had been taken by ambulance from his Pelican Lake cottage, where he was stricken with a heart ailment. He was a native of Minnesota, graduate of Hamline medical school the year it was merged with the University of Minnesota and his earlier practice had been in North Dakota-at

Alice, Enderlin and Edinburg. For the last sixteen years he had been connected with the veterans administration.

Dr. Guy Ramsey, 75, Sioux Falls, South Dakota, company doctor at the Morrell packing plant in that city, died in a hospital in Sioux Falls, August 19. A Pennsylvanian by birth, he graduated from Drake university in 1901 and had practiced, among several places, in Eureka, Salem and Philip.

Dr. Joseph A. Smith, 61, Minot, North Dakota, died August 13 at a Minot hospital from a heart attack. For the last seven years he had been eye, ear, nose and throat specialist at Northwest clinic. His birthplace was Ellendale and after two years of practice at York he served Noonan as surgeon and physician for thirty-three years.

Dr. Bernard Vincent McCabe, 73, Helena, Montana, died August 25 at St. John's hospital after a seven years illness, the last two years spent in hospital. He graduated from the medical school of University of Illinois in 1908 and for several years was president of Lewis and Clark medical society.

## Classified Advertisements

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Physician and surgeon's high grade instruments and equipment, almost new. Write Chris J. Hill, Adm., Washburn, No. Dak.

FOR SALE

Priced for quick sale, late model Picker Waite 30 ma. shock-proof x-ray unit, tilt Bucky table. Excellent condition. Address Box 824, care of this office.

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for beginning or established physician to share suite of offices with another physician or dentist. Individual treatment room or laboratory in new office building located in very best residential retail section. Address Box 761A, care of this office.

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Aznoe's, established in 1896, has available a number of well trained physicians (diplomates of the specialty boards, industrial physicians and surgeons, general prac-titioners, psychiatrists, tuberculosis specialists and resi-dents). For histories, write Ann Woodward, Aznoe's-Woodward Medical Personnel Bureau, 30 North Michigan Ave., Chicago 2, Ill.

FOR SALE One articulated skeleton 5' 6" tall, in oak cabinet. Two ribs on right side fractured, but so when purchased from Noyes Bros. & Cutler about 1904 (high school borrowed it and painted the front with luminol). Price \$60 f.o.b. Carrington, N. D. Edwin L. Goss, M.D., Carrington, N. D.

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X-ray and equipment, instrument cabinet, stands, lights, eye-testing outfit, office furniture; 12 pieces: sacrifice for quick sale. Complete list furnished on request. Write B. M. Hart, M.D., Onida, S. D., at once, marking envelope "equipment inquiry."

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THREEFOLD ACTION Syntronal 'Roche' selectively inhibits parasympathetic terminations in smooth muscle. In addition, it has a direct relaxing effect on spastically contracted smooth muscle and it also relieves nervous tension and apprehension which are often important factors in spastic disorders.

Syntronal will be found a valuable agent in spastic disorders of the gastrointestinal and urinary tracts, and in spastic dysmenorrhea. Syntronal is available in sugar-coated tablets, each containing 50 mg of Syntropan 'Roche' (phosphate of d,1-tropic acid ester of 3-diethylamino-2,2-dimethyl-1-propanol) and

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## SYNTRONAL 'Roche'

### Advertisers' Announcements

#### FRANKLIN HOSPITAL

To fill a need for practical nursing service during the war emergency and the post-war dislocation, Franklin Hospital, Minneapolis, initiated a nine months course for the training of practical nurses in April 1944. A group of 23 nurses was graduated in May 1945. Classes are now being started at four month intervals throughout the year. January 3 is the next entrance date. Franklin Hospital caters primarily to the chronic and convalescent patient.

#### A NEW ALBUMIN TEST

A new qualitative test for albumin is now available under the name Albumintest. This new method provides a simple, reliable test for albumin that can be carried easily and safely by physicians and public health workers. It is equally satisfactory for large laboratory operations.

The reagent which is nonpoisonous and noncorrosive is made as needed by adding one reagent tablet to 4 cc. of water. Bulk solutions for the laboratory can be prepared by using the same

proportions.

The technics are based upon original clinical studies by recognized authorities in the fields of pathology and public health. These technics include both contact ring and turbidity methods
—no heating is required. The one to be followed is a matter of choice.

The test was developed in the research laboratories of Ames Company, Inc., as a companion test to the Clinitest tablet method for detecting urine-sugar. The original laboratory work was begun in 1941 by J. A. Kamlet, Ph.D., W. A. Compton, M.D., and R. S. Nicholls. Clinical studies have been in progress since 1943.

Distribution of Albumintest tablets will be through the regular drug and medical supply channels. Two bottle sizes will

be available, 36's and 100's.

#### "COURAGE AND DEVOTION BEYOND THE CALL OF DUTY"

Mead Johnson & Company published, some time ago, the preliminary edition of a book under the above title which is "a partial record of official citations to medical officers in the United States Armed Forces during World War II." In its 250-odd pages are the battle stories of 244 doctors and eight military units whose names have been made glorious for all time by the awards of the Soldier's Medal, the Silver Star, the INCREASED MOTILITY Bronze Star, the Legion of Merit, the Navy Cross, the Naval Reserve Medal, the Purple Heart, the Distinguished Service Medal, the Air Medal, the Navy and Matine Corps Medal, the Distinguished Flying Cross, the Certificate of Commendation, the Presidential Unit Citation, the Oak Leaf Cluster to the D.S.M., the cluster to star, the Victory Medal and various other citations and commendations for gallantry in action and outstanding heroism.

As is the custom with this company, the little volume is handsomely made and, with the additions and corrections which will be included in the complete postwar edition, will memorialize the medical men who rendered exceptionally meritorious service and brought added honor to the profession by their

qualities of leadership and spirit of sacrifice.

\$40,000 in war bonds are being offered to physician-artists (both in civilian and in military service) for art works best illustrating the above title. This contest is open to members of the American Physicians Art Association. For full details, write Dr. F. H. Redewill, secretary, Flood Building, San Francisco, California.

## RICKETS PREVENTATIVE REQUIRES ONLY ONE CAPSULE A MONTH

Infron Pediatric-the result of important clinical researchintroduced to the medical profession by Nutrition Research Laboratories, the manufacturers of Ertron, is especially prepared, highly purified electrically activated, vaporized ergosterol (Whittier process). The contents of one Infron capsule (100,000

USP units) is a sufficient dosage for one month, which greatly simplifies the administration problem. It may be mixed with the feeding formula, milk, fruit juice or water-or may be spread on cereal. Infron Pediatric is supplied in packages containing two vials, each vial containing three capsules. One package is a six months' supply.

Dr. Harry P. Browning has arrived in Terry from Indianola, Mississippi, to assume the management of the Good Samaritan hospital at Terry. Dr. Browning completed his medical studies at the University of Virginia and his internship in Brooklyn, New York and at the General hospital of Orlando, Florida.

At the 45th semi-annual meeting of the Montana Academy of Oto-ophthalmology, held in Butte, July 8 and 9, Dr. A. de Roetth, Spokane, Washington, spoke on hypofunction of the lacrimal gland and Sjögren's syndrome and on the value of sulfanilamide and penicillin in ophthalmology. Officers of the Academy are Geo. A. Lewis, M.D., Roundup, president, and F. D. Hurd; M.D., Great Falls, secretary. Annual meetings are held in February, the 1945 session having been at Butte and the 1946 meeting being scheduled for Billings,

Montana Health, Volume 1 Number 1 of which issued under date of August, is the organ of the Public Health League of Montana, which includes among its member organizations the Montana State Medical association. The new publication printed the news of the July meeting of the medical association.

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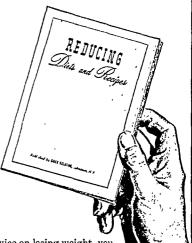
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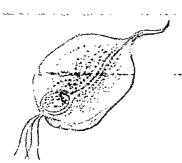
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Vioform, well-established as a trichomonacide, is now also available as VIOFORM INSERTS\*, containing Vioform, boric acid and lactic acid.

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routine—and for supplementary home treatment—hasten the prompt eradication of the parasites of trichomonas vaginitis, as well as the disappearance of the discharge. They aid in restoring normal acidity, meanwhile acting as an effective deodorant.

Vioform Inserts Issued in packages of 15

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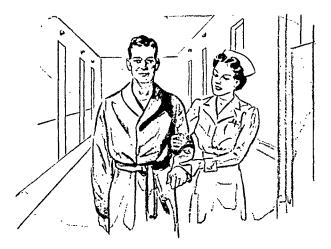
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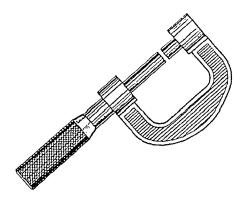
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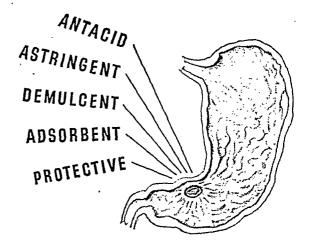
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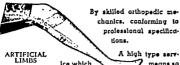
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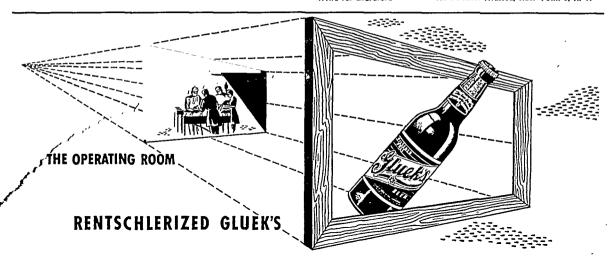
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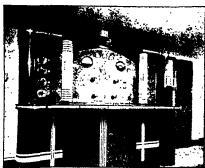
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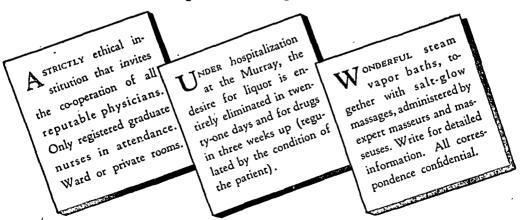
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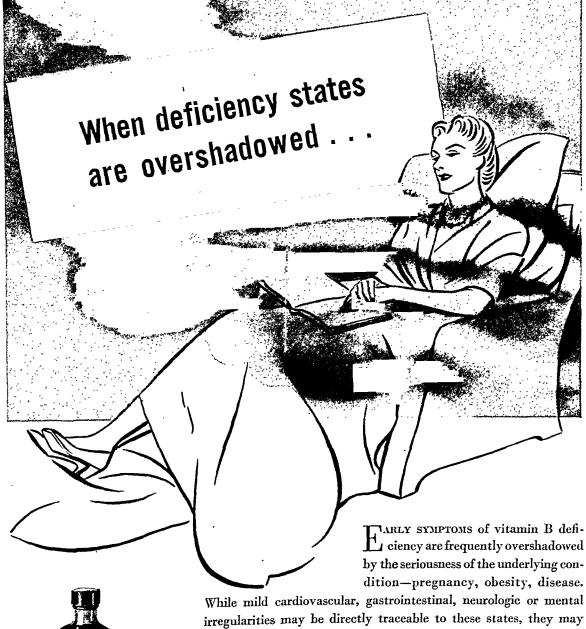
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Introductory Statement, S. Marx White, M.D.	81
The Consideration of Two Cardiac Cases Amenable to Surgical Treatment,	
Arlie R. Barnes, M.D.	82
Factors in Prognosis in Coronary Disease, Harold W. Gregg, M.D., F.A.C.P 38	85
Management of the Common Cardiac Irregularities, R. O. Goehl, M.D., F.A.C.P	91
Objective Tests of Cardiac Function, G. N. Aagaard, M.D.	94
Rupture of Heart: Review and Case Report, Jack L. Diamond, M.C., AUS	96
Digitalis: Its Legitimate Field of Usefulness, Paul P. Ewald, M.D	98
Treatment of Rheumatic Fever, M. J. Shapiro, M.D.	00
Abstracts of Articles on Heart Disease	1(
On the Founding of a Variety Club Heart Hospital, Cecil J. Watson, M.D 40	)2
MEET OUR CONTRIBUTORS 40	)3
American Student Health Association Secretary's Memorandum	)3
EDITORIALS	
Heart Hospital	)4
Poliomyelitis, James L. Wilson, M.D. 40	
BOOK REVIEWS 40	6
NEWS ITEMS 40	8
FUTURE MEETINGS 41	1
NECROLOGY	2
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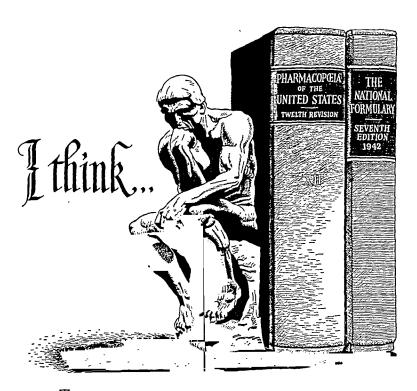
\* Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154 Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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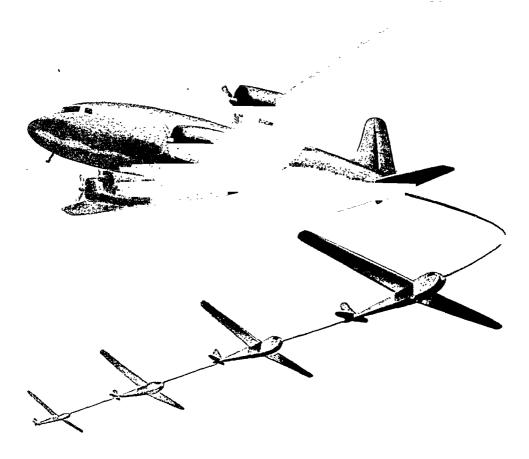
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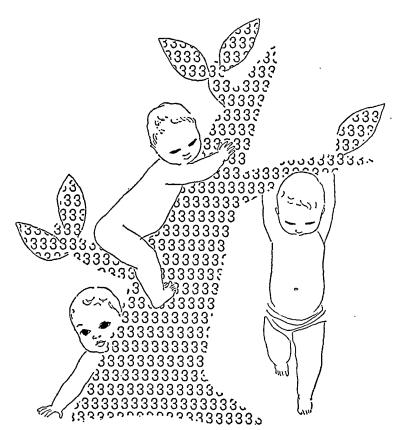
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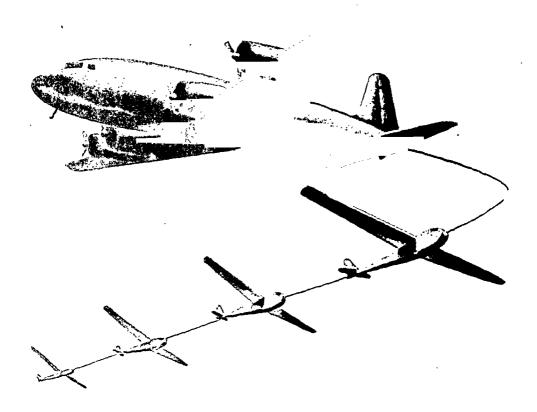
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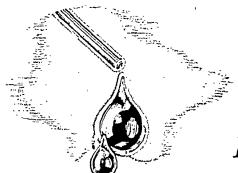
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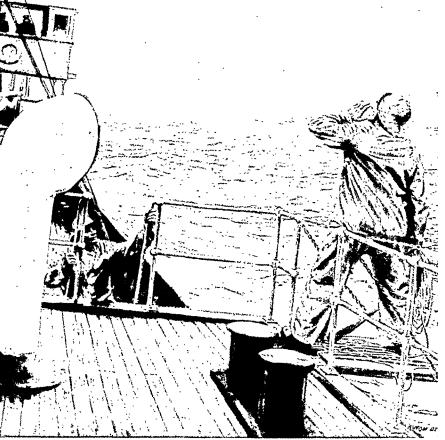
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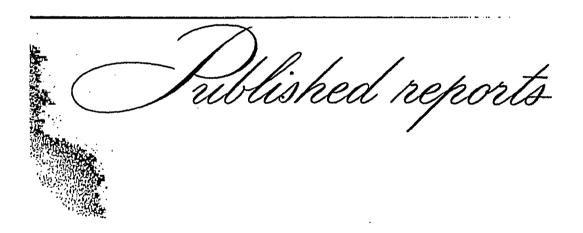
\*Synopsis of Materia Medica, Toxicology, and Pharmacology, Davison, F. R.: Hormones, St. Louis, The C. V. Mosby Company, 1942, p. 582.



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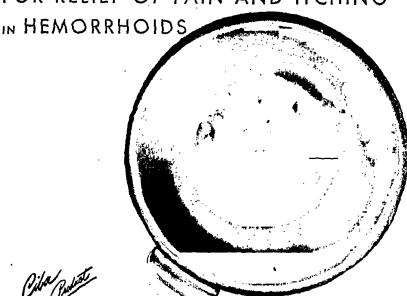


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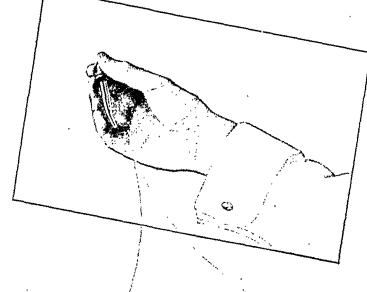
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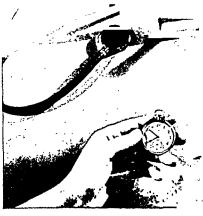
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## IN THE TREATMENT OF IRON-DEFICIENCY ANEMIAS



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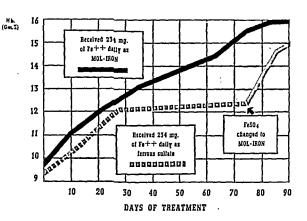
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\*Neary, E. R., Preliminary Evaluation of Molybdenum-Iron Complex in Hypochromic Anemias of Pregnancy, to be published.



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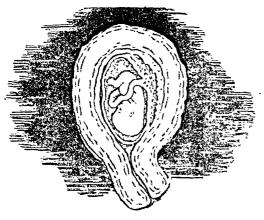
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COMPOSITION: Fergon is improved ferrous gluconate. Prepared and stabilized by Stearns' special process, it contains no more than 0.2% ferric iron.

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INDICATED in the treatment and prevention of anemias due to iron deficiency; especially valuable in patients who do not tolerate other forms of iron.

DOSAGE: Average dose for adults is 3 to 6 tablets (5 gr.) or 4 to 8 teaspoonfuls of clivir daily: tor children, 1 to 4 tablets (2½ gr.) or 1 to 4 teaspoonfuls clivir daily.

SUPPLIED as 5% clivir, bottles of 6 and 16 fl. oz.; 2½ gr. tablets, bottles of 100; 5 gr. tablets, bottles of 100, 500 and 1000.

\*Reznikoff,P.,& Goebel,W.F.J.Clin.Investigation,16,547,1937\*

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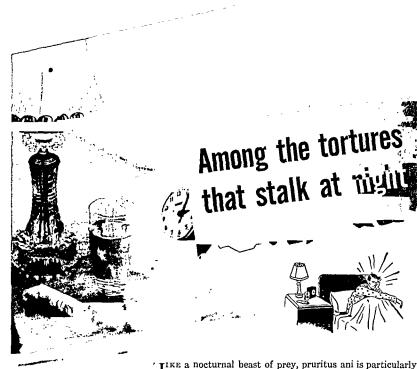
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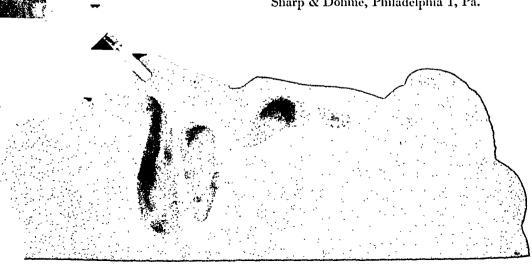
An isotonic solution with a pII of 5.5 to 6.5, 'PROTHRICIN' decongestant is ideally suited for topical application to the mucous membrane of the nose and accessory sinuses.

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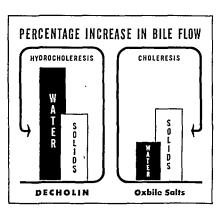
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agement of hepatobiliary disease, but also before and after gallbladder and common duct surgery, free flow of thin liver bile is an integral part of therapy. Impairment of bile flow -whether due to secretory deficiency, faulty bile composition, narrowed lumina of the biliary pathways due to hyperplasia or edema, or biliary dyskinesia-must be promptly overcome.

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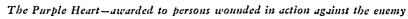
Not only in the conservative man- choleretic action, produces a copious flow of thin liver bile, under an increased pressure which proves efficacious in flushing the intrahepatic and extrahepatic passages, tending to free them of inspissated bile, gravel, and mucopurulent material. In the hands of many outstanding clinicians Decholin is a sine qua non in hepatobiliary disturbances. It is contraindicated only in complete obstruction of the hepatic or common bile duct. Supplied in boxes of 25, 100, 500 and 1000 334 grs. tablets.

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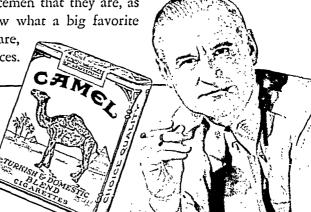
THE GUNS are silent once more. For the men with the guns, the war is over. But for the thousands of medical men in the service, the war still goes—their "war in white" in behalf of the wounded, the wearers of the Purple Heart. Doctors that they are, of medicine and morale, they well

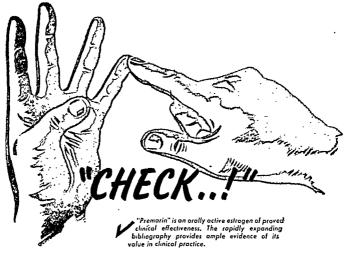
know how much a cigarette can mean to an invalid soldier. And servicemen that they are, as well, these doctors know what a big favorite Camels have been, and are, with men in all the services.

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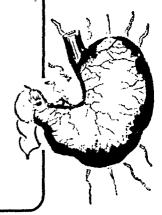
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GASTRON is indicated as replacement therapy in attophic gastritis and as adjunctive treatment in the anemias and in certain gastric deficiencies of convalescence and old age.

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DOSE: 1½ to 4½ grains (1 to 3 tablets, or 1 to 3 cc. oral solution) t. i. d. Ampules 1 cc.

Metrazol (Pentamethylentetrazol) T. M. reg. U. S. Pat. Off.



## Introductory Note to Symposium

S. Marx White, M.D. Minneapolis, Minnesota

With this number the JOURNAL-LANCET presents a special heart issue. The idea was suggested to the editor by the late Dr. Mabel S. Ulrich, and at our request she secured most of the papers for it and had the editorial work on it nearly completed when her untimely death August eighteenth closed her career.

Dr. Mabel, as she was so often called to differentiate her from her distinguished husband, Dr. Henry Ulrich, served the medical, social, and cultural interests of Minnesota and the Northwest for approximately forty years. Her great abilities and the breadth of her interests and sympathies marked her from her first appearance in Minneapolis.

Her contributions to medicine, her publications for public education in medicine and hygiene, her service on the Minneapolis Board of Public Welfare when her type of service was greatly needed, and the years when every lover of books sought her counsel in Minneapolis, in Rochester or in Duluth, all added to her acclaim. One of her last services was to this journal and this edition. In the contributions in this number, the role played by modern surgery is indicated by Barnes in his consideration of patent ductus arteriosus and chronic constrictive pericarditis. Discussion of the more rare and still more dramatic procedures of removal of massive emboli from the pulmonary

artery and the surgical exposure with manual manipulation of the heart into renewed effective contraction in cases of ventricular fibrillation belongs elsewhere.

Gregg has a very readable synthesis of the factors in prognosis of coronary disease.

Goehl presents some notes for the general practitioner on the common cardiac irregularities.

Aagaard outlines the methods of determination of venous pressure and circulation time which should be practiced by everyone pretending to care for patients with heart disease.

Diamond recites the conditions under which a diagnosis of cardiac rupture in myocardial infarction is most likely to occur.

Ewald sketches the indications and contraindications for digitalis.

Shapiro's long experience at Lymanhurst gives him an unusually authoritative position when he writes on the treatment of rheumatic fever.

The JOURNAL-LANCET expresses high hope that the movement now on foot to establish at the University of Minnesota a heart hospital in which rheumatic disease in children can be studied will soon be consummated. This is the sort of activity in which Dr. Mabel Ulrich would have entered with enthusiasm, elan, and all the resources of her ardent nature.

# The Consideration of Two Cardiac Diseases Amenable to Surgical Treatment

Arlie R. Barnes, M.D.† Rochester, Minnesota

T is useful at times to discuss some of the less common forms of heart disease. This is particularly appropriate since for some of these conditions curative procedures are available.

There are two minimal requirements for making the diagnosis of patent ductus arteriosus; the first is a continuous murmur over the pulmonary region and the second is roentgenographic evidence of enlargement of the



Fig. 1. Patent ductus arteriosus: (a) on admission there is cardiac enlargement with prominence of the pulmonary conus and bilateral hilar congestion; (b) one month after operation the size of the heart is reduced and the left pleura is somewhat thickened.

### I. THE PATENT DUCTUS ARTERIOSUS

One of these cardiac conditions is patency of the ductus arteriosus. Patency of this structure in infancy and adolescence or young adult life may jeopardize the cardiac function seriously or greatly reduce life expectancy. Its effect on cardiac physiology is the same as that imposed by peripheral arteriovenous aneurysm. Blood flows through the patent ductus from the aorta to the pulmonary artery so that cyanosis is not present in uncomplicated cases. Of the blood pumped out by the left ventricle into the aorta 40 to 75 per cent passes back through the short circuit into the pulmonary artery. As a consequence of this the left ventricle pumps from two to four times as much blood as the right ventricle in the same length of time. The consequent rise of the pulmonary arterial pressure and the fall of the peripheral diastolic blood pressure account in part for the increased

\*Presented before the Grand Forks District Medical Society, Grand Forks, North Dakota, October 17, 1945.

pulse pressure so characteristic of the patent ductus arteriosus.

pulmonary conus (fig. 1, a and b). The murmur has been described as machinery-like but it is essential that it be heard in diastole as well as in systole (fig. 2). A thrill may be felt at the point of greatest intensity of the murmur in about 75 to 80 per cent of cases.

The pulse pressure in cases of patent ductus arteriosus is greater than the average (normal pulse pressure 30 to 45 mm. of mercury). Great caution in arriving at a diagnosis of patent ductus arteriosus must be observed in the absence of increased pulse pressure. Since patency of the ductus arteriosus produces both right and left ventricular hypertrophy, the electrocardiogram reveals no axis deviation or only slight deviation. Marked right axis deviation of the electrocardiogram suggests other congenital defects, such as a large defect of the interauricular septum or the tetralogy of Fallot.

Studies of the life expectancy of patients who have patent ductus arteriosus are interesting. In one series <sup>3</sup>

<sup>†</sup> Mayo Clinic.

November, 1945

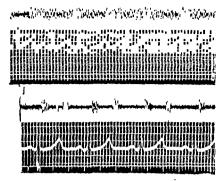


Fig. 2. Patent ductus arteriosus: phonocardiogram, Upper panel shows systolic and diastolic murmur before operation. Lower panel shows disappearance of systolic and diastolic murmur after operation.

in which no patient less than three years of age was included, 14 per cent of the patients were dead at fourteen years of age, 50 per cent at thirty years of age and 71 per cent were dead at forty years of age. Other investigators 4 have concluded that this cardiac lesion reduces the life expectancy of males about twenty-three years and that of females about twenty-eight years. In this latter series subacute bacterial endocarditis accounted for 41.7 per cent of deaths and congestive heart failure for 28.3 per cent.

Indications for operation. Unquestioned indications for surgical closure of the patent ductus arteriosus include (1) uncompensation <sup>5</sup> (indicated by lowered diastolic pressure, high pulse pressure, a collapsing pulse, an enlarging heart or by symptoms of increasing dyspnea) and (2) the presence of subacute bacterial endocarditis.

Differences of opinion arise about the indications for surgical closure in cases in which patency of the ductus arteriosus is compensated 5; that is, in cases in which the diastolic pressure is normal or only slightly reduced and there is little or no cardiac hypertrophy and no peripheral signs of regurgitation. The earlier view in such cases has been that each case should be considered on its merits and that the patient should be observed for developments indicating a need for operation. However, if one reflects on the statistics of reduced life expectancy given in the previous paragraph, it is not easy to reach a decision that surgical closure in cases of compensated patent ductus arteriosus is not indicated.

Surgical closure of uncomplicated patent ductus arteriosus in the hands of a surgeon experienced in performing this procedure can be accomplished with a mortality rate of approximately 5 per cent. The surgical risk rises appreciably if subacute bacterial endocarditis is present but surgical closure of the duct still offers the patient the best prospect of complete recovery. Moreover, it is unwise to delay surgical treatment until a cure has been attempted with sulfonamides or antibiotic agents.

Successful closure of the duct produces a high percentage of permanent cures.

II. CHRONIC CONSTRICTIVE PERICARDITIS

Chronic constrictive pericarditis is another cardiac disease for which surgery offers a successful method of treatment. The disease is of uncertain and variable causation. Tuberculosis was demonstrated to be the cause in 21 per cent of our cases in which treatment was surgical. In many cases no antecedent history of any infection can be obtained. In a considerable number of cases a history of previous pulmonary infection is elicited but it rarely can be established that pericarditus was demonstrable at the time of the infection. It is generally agreed that rheumatic fever is not responsible for the condition.

It is generally accepted that chronic constrictive pericarditis is on an inflammatory basis comprised of fibrous adhesions, in some instances of deposits of calcium, and occasionally includes pockets of encapsulated fluid forming on or between the epicardium and the pericardium. This inflammatory scar may contract around the heart muscle to such a degree that it limits the diastolic filling of the heart, producing an inflow stasis. In consequence of this the venous pressure rises, edema and ascites result and the stroke volume and minute output of the heart are decreased. This latter effect results in a lowering of the blood pressure and an acceleration of the heart rate. Myocardial fixation to the scar and myocardial atrophy and degeneration from limited action of the heart as well as the effect of residual infection of the epicardial portion of the myocardium undoubtedly contribute something to the diminished force of the ventricular contractions.

Chronic constrictive pencarditis should come to mind whenever the examination of a patient who has edema, and particularly of one who has ascites, fails to reveal any cardiac lesion or enlargement. The term, "the small, silent heart," has been applied to describe the situation. While this designation is warranted in general, there are instances of cardiac enlargement in chronic constrictive pericarditis which are accounted for by encapsulation of fluid in the inflammatory mass about the heart or by pericardial thickening of considerable degree which completely envelops the heart. Since orthopnea occurs rarely, an important clue to the diagnosis is furnished by a patient who has marked ascites and edema but who is not dyspneic when he lies flat in bed.

Inspection reveals engorgement of the cervical veins, the veins of the arm do not collapse notmally as the arm is raised above the level of the heart, cyanosis may be present but its degree does not appear to be in proportion to the other evidences of congestive failure and the apex beat may be scarcely visible. On auscultation the heart tones are likely to be faint, murmurs are absent and the heart rate is greater than normal or auricular fibrillation is present. The blood pressure usually is lower than normal unless the patient has hypertension.

Usually, the liver is considerably enlarged and dye tests of hepatic function commonly show much impairment of its function. For this reason the condition is often confused with cirrhosis of the liver. This doubt is quickly dispelled if the venous pressure is determined.



Fig. 3a and b. Pericardial calcification before operation in a case of constrictive pericarditis.

The venous pressure in cases of chronic constrictive pericarditis is markedly elevated. The exclusion of congestive heart failure due to other causes is established if evidences of valvular defects or of cardiac hypertrophy and dilatation are absent on physical examination.

The roentgenographic examination may be of value if, in addition to excluding cardiac enlargement, it demonstrates deposits of calcium in the pericardial area. Pericardial calcification was demonstrable in about 60 per cent of our cases (fig. 3).

While electrocardiographic changes pathognomonic of this condition cannot be claimed, yet there are changes that are strongly indicative of constrictive pericarditis (fig. 4). The electrocardiographic pattern which is most suggestive is one in which the QRS complexes are of low voltage (5 mm. or less) and T waves are negative in all standard leads. If the QRS complex is low in only one lead, that will usually be observed in lead I. The T waves in the standard leads may be of low voltage though upright. They may be iso-electric or may be inverted in only two leads. In precordial leads inversion of the T wave will be observed in most instances in which there is T wave inversion in the standard leads. The voltage of the QRS complexes in the precordial leads is impaired to a much less degree than it is in the standard leads.

Marked pericardial thickening, even including pericardial calcification, may exist without the occurrence of cardiac constriction. The diagnosis of cardiac constriction is justified only when the venous pressure is found to be elevated. Surgical intervention is not indicated unless evidence of cardiac constriction exists. Since the interference with cardiac function in cases of constrictive pericarditis is essentially a mechanical one, the only permanent relief that can be afforded the patient is by the

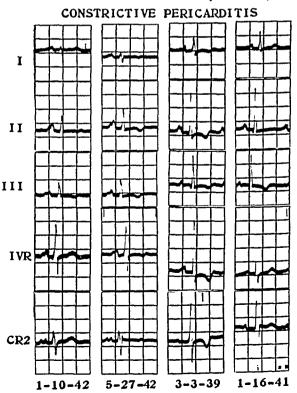


Fig. 4. Electrocardiograms of two patients before operation (columns 1 and 3) and of the same two patients after operation (columns 2 and 4).

surgical removal of this fibrous encasement. It is essential that the diagnosis be made as early as possible so that the extent of myocardial atrophy and degeneration and of hepatic impairment may be kept at a minimum. While the surgical risk is of the order of 25 per cent, yet it is not too high in view of the hopeless prognosis that confronts these patients without surgical treatment. Of those that survive, our experience" has been that about half are completely restored to normal health and the remainder experience sufficient improvement to be well repaid for their operation.

Finally, these patients do not recover full cardiac function quickly after operation. The myocardial atrophy consequent on long impairment of cardiac contractility and the residual inflammation of the epicardial portion of the myocardium may require many months for complete resolution. But the satisfaction to be derived from seeing these patients, who have been hopelessly crippled by heart disease, restored to a normal or nearly normal cardiac function is matched by no other results in the treatment of cardiac disorders that one is privileged to

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## Factors in Prognosis in Coronary Disease\*

Harold W. Gregg, M.D., F.A.C.P.

Butte, Montana

T has been said by Dr. Wm. D. Stroud1 that "The subject of coronary insufficiency, coronary disease and angina pectoris should be a most interesting one, not only because the majority of the patients seen by a physician will sooner or later suffer with such a picture, but also because most physicians must expect to die with this condition. It therefore behooves us to learn as much as we can concerning its prevention and treatment."

This applies perhaps more particularly to this group here today, because all of us as internists find our practice as we grow older including more and more cases of heart disease, especially coronary disease. It is the disease of our present generation. Since the publication of Herrick in 1912,2 in which he described coronary occlusion, long regarded as an occasional autopsy finding and in which he separated it from angina and firmly established the features of sudden obstruction of the coronary arteries as a clinically recognizable syndrome, the story of coronary thrombosis and coronary insufficiency has had many side lights. We have gone from an attitude of hopelessness to one of realistic optimism, without shutting our eyes to the fact that many of these cases die suddenly and that many more live for all too short a time. I have nothing new or original to propose but only wish in some small way to reaffirm this attitude of realistic optimism as regards coronary disease.

Again it may seem somewhat paradoxical to be urging optimism, when we know what a toll this disease is taking today. A good many physicians, however, have very personal reasons for taking an optimistic viewpoint. It helps them if they happen to be suffering from coronary disease to work out a satisfactory philosophy, and, after all, perhaps the most important thing in the treatment of coronary disease is to help our patients work out a

Note: This paper was originally presented at the Montana, Woming, Regional Meeting of the American College of Physicians on May 1st. 1943, with charts and electrocardiographic tracings shown on the screen and with more cases discussed. Obviously limited space does not allow such presentation here.

philosophy of life which will help them to live what years they have without fear, without dread and with some approach to normality. If we do not encourage them, many of them turn to cultists and refuse to do those things which may lengthen their comfortable years.

The remark of the head of one of America's large insurance companies which he recently made to a group of physicians is a case in point. "It seems to me that most of the people you advise us to reject for life insurance because of their hearts, act as pallbearers for the ones you tell us to accept." That is exaggerated, of course, but there is a measure of truth in it. It is only natural that a person who feels that he has some cardiovascular weakness is perhaps going to take better care of himself than the man who feels he is 100 per cent from a cardiovascular viewpoint, and the former may live longer than a person who thinks himself sound.

Sir James Mackenzie had his first substernal discomfort when he was 49 years old. When he was 67 he was playing his St. Andrews golf course in 84 and 86 when most of the men his age were playing it in 120. He died of coronary thrombosis at 73.

Dr. Wm. Thayer of Johns Hopkins had cardiac warnings for the last ten years of his life, but throughout that time carried on a large consultation practice.

It is perhaps more difficult in these days when doctors are coronary conscious and the patients are heart conscious, to get an unbiased history in coronary disease, and yet the little things in the history are so important. We may depend on the electrocardiogram for objective knowledge, but it still cannot take the place of a thorough painstaking history, even though this history may rest on a foundation of sand, since it does depend so much on the patient's personality. As patients have come to know so much about coronary disease and to fear it, this very fear is apt to color unconsciously their story to the doctor.

As far as sudden death is concerned, our most recent statistics seem to indicate that only about 25 per cent of the people with coronary thrombosis die suddenly in their first attack. We know furthermore that if the actual danger period in coronary occlusion is passed safely, the mere fact of the coronary occlusion may not in itself appreciably alter the patient's expectation of life, although it does mean that the patient has coronary disease, which in turn means a guarded prognosis.

It is now known too, that the basis of coronary sclerosis and the manner in which it has developed are very important as regards acute coronary occlusion in determining life expectancy. And with this in mind, it may be wise to consider our whole subject on the basis of coronary insufficiency, which may be due to several causes, only one of which is typical coronary occlusion.

As Katz<sup>3</sup> has succinctly stated the case, the fundamental causes of coronary insufficiency fall into four main groups:

1. Decrease in coronary flow.

- Defects in the quality of the blood flowing in the coronary vessels, especially as regards oxygen content.
- 3. Increase in the work of the heart without equivalent increase in the coronary flow.
- Hypertrophy of the heart not accompanied by increase in the capillary bed.

Whenever any of these factors are present, there are, of course, compensatory mechanisms which come into play, but they may not be strong enough to overcome the condition completely, and then we get the symptoms of coronary insufficiency. With this in mind it becomes so much more important in considering prognosis in coronary disease, to decide whether a given patient's coronary circulation is sufficient for the ordinary activities in which he indulges, than it is to even try to estimate the degree of anatomical change which is present in his coronary vessels.

There are many patients, we are sure, who have coronary disease even in rather advanced stages, who have no clinical signs or symptoms. Comparison of autopsy findings with clinical records and with the electrocardiogram sometimes shows marked anatomical findings in the coronary arteries without any clinical or electrocardiographic evidences. On the other hand many times there may be marked electrocardiographic changes and clinical evidences of coronary insufficiency without any apparent anatomical change being found at autopsy. This brings us again to the fact that all coronary disease should probably be considered from a functional viewpoint for the sake of prognosis at least, and to the realization that the autopsy findings alone do not reveal with accuracy in any given case the degree of coronary insufficiency during life.

The situation is comparable to that in advanced mitral stenosis. Many patients with mitral stenosis live rather comfortably for many years, but it is only when decompensation begins that we have serious signs and symptoms. With this in view, it is evident that whenever any area of the heart muscle is inadequately supplied with the proper amount and proper quality of blood, coronary insufficiency exists. Obviously the heart under some con-

ditions may have need for an increase in blood supply, under other conditions there may be an actual reduction in coronary flow. Either of these conditions means coronary insufficiency, and when such coronary insufficiency does exist it may lead to certain clinical signs and symptoms and electrocardiographic changes.

The ordinary anatomical examination of coronary arteries at autopsy cannot always be complete enough to show definite damage to some of the smaller branches. Present methods of injection obviate this difficulty to some extent. Further, a wide variation in the collateral circulation makes it impossible from anatomical examination to know just how much coronary insufficiency might have been present during life. As far as the symptoms of coronary damage go we know so little about the physiology of the sensory nerves of the heart that subjective findings are not always reliable. We do know that disease in the belly or chest, in organs that have segmental innervation associated with that of the heart, may aggravate symptoms of coronary insufficiency. It has been shown that anginal attacks may be produced in some people by temporarily cutting off part of the blood supply to the left forearm.

Then there is always the very important factor of the patient's personality makeup which must color the patient's history. So that, although the most common cause of coronary insufficiency is advanced coronary sclerosis, the two conditions cannot always be correlated. Whenever coronary insufficiency is present due to any cause, it eventually leads to local or generalized necrosis, degeneration, and finally fibrosis of the heart.

It is axiomatic that coronary insufficiency does not necessarily involve an absolute decrease in coronary flow or change in the composition of the blood. It means, rather, a coronary flow or blood composition which is relatively inadequate for the work the heart is called upon to do at a given time. What then, are the factors concerned in adjusting coronary flow to the need for that flow? When we have sclerosed coronary vessels we have a decrease in coronary flow. However, if the sclerosing process goes along slowly enough, collateral vessels may develop to keep pace with heart needs and we may have no insufficiency. This circulation may be aided by the Thebesian vessels as far as the auricles and right ventricle are concerned and throughout the heart by anastomatic connections from extracardiac sources.

Coronary insufficiency may occur in syphilitic aortitis due to the process around the mouth of the coronary arteries. It may occur in stenosis of the aortic valve for obvious reasons. It may occur again due to the markedly diminished diastolic pressure in aortic regurgitation, because the coronaries ordinarily fill during diastole. It may occur at any time the arterial pressure is suddenly lowered due to peripheral reasons, as in shock and vasomotor collapse. Finally coronary insufficiency with its most dramatic manifestations may occur with embolic or thrombotic occlusion of the coronary arteries. The closure may be just as sudden through rupture of an atheromatous plaque. There may be temporary insufficiency such as occurs in angina pectoris with spasm of the coronary vessels, sometimes in pulmonary embolism.

Coronary insufficiency may develop due to increased resistance to the emptying of the coronary blood. Large amounts of potassium salts, pitressin, and injections of foreign proteins may cause temporary vasoconstriction and thus coronary insufficiency.

As to the disturbances in the quality of the coronary blood, anemia is the chief offender. However, an anemia which is slowly developed is probably never more than a contributory cause in coronary insufficiency and may serve only to bring on symptoms in a case with otherwise symptomless coronary sclerosis. Decreased oxygenation of blood which is often present in pulmonary congestion, or even in emphysema, may cause marked temporary coronary insufficiency and may often be relieved dramatically by the administration of oxygen. Further, sudden increase in the work of the heart may bring on coronary insufficiency, because the coronary flow does not keep up with increase in work. These are the cases in which, to reduce the work of the heart, rest is absolutely essential. A fast or irregular heart is mechanically inefficient, thus in these cases quinidine or digitalis may be advisable.

I am sure that we have all seen cases in which cardiae hypertrophy results in coronary insufficiency since the coronary capillaries are not increased in number as the muscles increase in size.

In many of our chronic cardiac cases we see examples of coronary insufficiency in which the clinical signs and symptoms come on very rapidly and disappear quickly. These cases often show transitory precordial pain, marked dyspnoea and pulmonary edema, and may or may not show any electrocardiographic changes.

As a case in point I should like to report a case. A. J.-banker, age 70, without a hobby. On 3-29-34 gave a history that for six months he had mild shortness of breath. Had had what was called influenza five weeks before being seen. Since this attack he had had more shortness of breath-had had to slow down markedly on walking uphill. The past history had been insignificant except that for years he had had symptoms suggestive of duodenal ulcer, never proven. Today patient had marked air hunger and feeling of compression in chest. P.M.I. in the fifth interspace 9 cm. to the left of the nipple. Rough systolic murmur over the whole precordium transmitted to the axilla and the back. No lung or peripheral edema. Blood pressure 205/110. Advised bed rest. On 4-5-34 the patient suddenly had another spell of increased air hunger. Blood pressure suddenly changed to 198/0. Had no diastolic murmur. Had marked pistol-shot femoral sound and Corrigan pulse. The absolute diastolic and even the pistol-shot femoral disappeared in thirty days never to return. He had many spells of acute air hunger, of course, during the rest of his life. On 4-20-34 and 4-21-34 we were extremely fortunate to have the wonderful counsel and kindly advice of Dr. James B. Herrick on this case. During the early days of this man's illness an electrocardiogram showed no signs which we could interpret as suggestive of coronary occlusion. It did show definite myocardial damage and we knew that many of his symptoms were brought about by coronary insufficiency. During the eight years of his life after the first attack he had many attacks

(about twenty in all) of acute pulmonary edema, when, after some little extra exertion or some slightly increased emotional stress, he would develop marked air hunger and within two or three minutes would begin to cough and spit up bloody sputum. Both lung fields would show diffuse fine moist rales. On 4-1-35 he had what appeared to be a painless coronary thrombosis. And after this his cardiograms all showed much more marked myocardial damage, with bundle branch block. After the development of the bundle branch block, however, he lived over six years and withstood two attacks of severe bronchopneumonia in one year, the last attack coming in February of 1938. He exhibited, from the time of the thrombosis on, a rather marked emotional upset with extreme depression. I suppose that this depression, which is so characteristic of this type of case, is probably tied up with more or less chronic brain anoxemia.

The attacks of pulmonary edema in this case were of particular interest because of their very rapid onset and because of the fact that they responded so readily to rest, injections of morphine and atropine, and oxygen administration. The case was also especially interesting because this condition had developed in a man who had not learned to play and because of the emotional upset that was bound to come when the patient could not work.

These incidents of transitory coronary insufficiency typified by attacks of angina pectoris, cardiac asthma, and pulmonary edema occurring against a background of chronic or potential coronary insufficiency, may be brought on by excessive physical or emotional stress, by marked tachycardia or irregular heart action, by a very heavy meal, even by a sudden change in position, by movements or dreams occurring in sleep and by rapid ascents to high altitudes which often occur now since flying is so general, sometimes by massive hemorrhage or shock. In case of sudden death due to acute coronary insufficiency, however, occlusion of one of the atteries takes place quickly and death is usually due to ventricular fibrillation with sudden cardiac standstill.

In the protracted coronary insuffciency cases as described by Katz, we get the typical picture of an acute myocardial infarction. The occlusion in these cases is thrombotic, whether due to arteriosclerosis or to embolism, and infarction always occurs when the blood supply to a certain region of the heart has been cut down enough over a long enough period. If the cut-down of blood supply is less intense it must be present longer in order to produce infarction.

The amount of ischemia of the heart muscle depends in turn on how much obstruction there is, how much collateral circulation there is, on the composition of the blood, and on how much work the heart, especially that chamber of the heart, is having to do at the time. Sometimes, of course, collateral circulation is so good that complete occlusion can occur without infarction.

There are certain conditions which are confusing, which may give some clinical and electrocardiographic evidence of coronary insufficiency. Pulmonary embolism, at times pericarditis, wounds of the heart, dissecting

aneurysm, and paroxysmal rapid heart action are ex-

amples.

Often in these conditions an immediate differentiation between them and coronary thrombosis cannot be made either clinically or by means of the electrocardiograph, although there are usually enough clinical evidences to make the diagnosis possible even though the electrocardiogram is confusing.

Katz³ divides the chronic form of coronary insufficiency into non-progressive and progressive types. In the non-progressive form the insufficiency may be of any degree when first observed and it may progress very slowly or not at all throughout the years. The prognosis of these cases is good unless for some reason we get an acute myocardial infarction or a sudden fatal attack of coronary insufficiency. Sometimes after a coronary closure compensatory factors come into play and we may have a chronic coronary insufficiency in an arrested form.

Another case in point as regards prognosis is that of another banker without a hobby, age 61. On 8-1-37 he was awakened out of his sleep with sudden severe pain in the upper epigastrium, radiating to the apex. On the next day his blood pressure was 136/88, blood count: whites 18,200 with polys 88 per cent. Temperature R 102. Electrocardiograms of this period show signs of acute coronary thrombosis with marked changes in the first and fourth leads. In the electrocardiogram on 1-5-38 the changes in the first lead had already disappeared, leaving only the fourth lead changes as electrocardiographic evidence of his disease.

This man, in spite of contrary advice, has worked almost every day since three weeks after his original insult and is still doing very well in spite of not taking care of himself very well. These cases of coronary insufficiency may have to have watchful care over a period of years and careful, intelligent medical care in these cases may preserve many men and women for their families and their work for several years during the prime of life and thus pay such dividends as does no other medical care which we can give. This sort of coronary insufficiency may also appear very silently in such diseases as diabetes, hypertension, and obesity.

The progressive type of coronary insufficiency, however, shows rather rapid changes. The disease of the

vessels may develop rapidly and the compensatory factors may be slow in getting to work and these cases usually

have early death.

When we have cases of acute myocardial infarction which are not on the basis of chronic coronary insufficiency we may keep them at rest for six weeks to three months, with the result that many of them may be said to have obtained for all practical purposes, a cure. They must be careful, of course, as to prolonged physical or emotional stress for the rest of their lives, but many of them may even carry on their profession actively, and may even indulge to a limited degree in some of the less violent sports.

All of this leads us to the conclusions which are backed by the bulk of statistics, that while coronary thrombosis is always a serious condition, prompt diagnosis and treatment may result in a good many recoveries, especially if the first attack occurs before the age of 60. Conner and Holt<sup>4</sup> studied 287 cases of coronary thrombosis over varying periods at the New York Hospital, Cornell Clinic, and in their private practices and at the time of their report 117 out of 287 were known to be alive, 142 had died, and 28 were untraced. Out of the 117 cases surviving the first attack, 75 per cent were alive and in good health at the end of one year, 56 per cent at the end of two years, 42 per cent at the end of three years, 34 per cent at the end of four years, 21 per cent at the end of five years, two cases living at the end of twelve years and one at the end of seventeen years. Twenty per cent of those who survived the first attack enjoyed good health for more than five years.

In White's and Bland's 200 cases of coronary throm-

bosis, 16.2 per cent lived four years or more.

Levine on the other hand found an immediate mortality of about 50 per cent. The average age of those who recovered was 54.7 years. The average of those who died in the first attack was 61 years. Perhaps the younger patients are a little more apt to recover.

Willus<sup>7</sup> of Rochester, reporting on the after history of 370 patients with coronary thrombosis who were seen at the Mayo Clinic, said that at the time of the report 45.7 per cent were alive and 54.3 per cent dead. Of these deaths all but 10 were due to some cardiac involvement. Of the 169 living cases and the 190 fatal cases who had a cardiac death, 77 per cent lived for one year or more, 67 per cent two years or more, 57 per cent three years or more, 41 per cent four years or more, 26 per cent five years or more, 5 per cent ten years or more, 1 per cent fifteen years or more.

Coronary disease is probably on the actual increase and in spite of our optimism it has a serious morbidity. It attacks most often between 40 and 60, the prime of life. In our own country it seems to have certain geographical incidence with above average death rates in New England and Middle Atlantic and along the Pacific coast states. Body build may play some role, occupation probably does not, although what statistics are available seem to indicate that foremen and skilled workers have a higher percentage rate than do even professional men.8

The immediate prognosis is grave. Prompt discovery and proper treatment of these cases may restore many persons, even with the severest initial symptoms, to rea-

sonable health and usefulness.

As to further etiology of coronary insufficiency, or of the factors that may contribute to coronary insufficiency, the late Stuart Roberts in 1931 wrote: "We call a syndrome angina pectoris, or essential hypertension, or nervous indigestion, but in reality it can be explained on the basis of spasm of the muscles in different systems. It does not depend primarily upon an organic or cellular pathology of that system but rather upon the spasmogenic aptitude and constitution of the individual. As the gear of the nervous system, so is the presence or absence of spasm." He goes on to compare the white man's life with its stress and strife with the southern Negro's life, unhurried, unworried as it may be. However, there have been some statistics recently published showing that perhaps the Negro, even with his slow, happy-go-lucky disposition, has as much coronary disease as do white folks; that the matter is individual and not racial. We have all

by now heard the story told by Dr. Howard Sprague who met the Negress who was over 102 years of age and her explanation of how she had lived so long; that when she sat, she sat loose. Perhaps that is the answer for the average angina patient; to learn the philosophy of life which makes him when he sits, to sit loose.

The largest incidence of coronary disease seems to be in the sixth decade with the peak around 57, but more and more we are finding cases in the fifth, fourth, and

third decades.

As to some of the factors in etiology which I think we might consider and which are important to us in thinking of prognosis, we must first consider heredity. It has been pretty well proven that there are certain families with a history of degenerative type of cardiovascular disease, in which the individual is born with an hyperirritable vasomotor system. In other words, who have what has been called a spasmogenic aptitude, or who lack, as (Sir William) Osler put it, the proper tubin. If in our care of families we can reasonably convince ourselves that we have a child who is a potential coronary case we may be able to help him steer clear of some of the other etiological factors which might develop his aptitude.

Whether frequent streptococcus infections in early life play a part in the development of arteriosclerosis, no one knows. There is some basis for this possibility in the pathological picture of the coronary arteries which we sometimes encounter in children who die of rheumatic

heart disease in the first ten years of life.

As to the effect of diet, I do not believe anyone knows what its relation is to hypertension and arteriosclerosis. There is no evidence that the amount of salt in the diet . has very much to do with these cases except in the presence of edema. The more or less recently acclaimed low protein diet is probably not only of no value, but may be harmful because it may help increase the permeability of the capillary walls and thus contribute to heart failure with edema. The effect of intestinal stasis may be important; I do not know.

As to the effect of alcohol and tobacco, White and Sharber<sup>9</sup> studied 1500 private cases with special reference to the effect of alcohol and tobacco as regards angina pectoris. They studied 750 cases with angina pectoris and 750 without. Both groups were of the same sex and same walks of life. The comparison showed that 46.1 per cent of the anginal patients had been abstainers from tobacco while 24.4 per cent had used tobacco to excess. Thirty-seven per cent of the control series did not smoke and 33.5 smoked excessively. Total abstinence from alcohol was the history in 64.4 per cent of the angina patients and in 61.7 per cent of the controls. Only 8 cases, or 1.1 per cent of the angina cases drank considerable or excessive alcohol and only one drank very heavily, while 63 individuals, or 8.4 per cent of the control series, drank much alcohol, 4 of them very heavily. So that it appears that neither the use nor the abstinence from either tobacco or alcohol plays an important role in angina pectoris. In occasional cases tobacco apparently aggravates or precipitates attacks of angina pectoris and in an occasional case alcohol helps relieve such attacks.

Perhaps one of the most important factors is obesity. Many hypertensives can reduce their blood pressure markedly by simply reducing their weight. Many of these people who have anginal attacks seem to have fewer attacks as their weight is reduced. People who are overweight are much more apt to develop diabetes and, of course, the relation of diabetes and arteriosclerosis is well known. However, since the heart muscle depends to a great extent on glycogen for its nutrition, one must be careful in reducing the blood sugar in patients with diabetes who also have coronary insufficiency. We all have patients under our care in whom we can bring on typical anginal attacks by reducing their blood sugar below a high normal. It does not need to be low enough to cause a severe insulin reaction.

Whether excessive effort is of much importance as a causative factor in arterial disease is a question. Why do so many crack athletes die in their fifties and sixties due to some cardiovascular disease? Perhaps they have that spasmogenic aptitude which makes them good athletes and they may die at about the same age whether or not they took part in athletics. Then as to some of the most important factors, we must consider emotional stress, mental concentration without adequate relief and too few vacations: i. e., the stress and strain of modern life. We must remember the number of prominent business men who died from coronary disease at the beginning of the depression in 1929. We can speak very glibly of the stress and strain of modern life being a factor, but I do not believe anyone knows the mechanism, nor does anyone know why the stress of war should be a causative factor in coronary disease.

As to the relation of coronary disease to upper belly disease, we do know that many attacks of coronary thrombosis were mistaken in the past for gallbladder disease. Today the pendulum has swung the other way, and perhaps we are neglecting some cases of gallbladder disease on a basis of coronary diagnosis. It must be remembered that the two conditions are often associated and that many times removal of a badly infected gallbladder will definitely improve the signs and symptoms of coronary insufficiency. The digestive aspects of coronary occlusion have become so impressed on the mind of physician and laymen that many abdominal conditions are sometimes today mistakenly labeled coronary heart disease.

All in all, no single condition in clinical medicine presents a more difficult problem in prognosis than coronary heart disease. Except in advanced cases it is very often difficult to gauge the extent of the damage. All of us have seen patients for whom the outlook appeared hopeless, who, after a long period of rest, have regained a fair measure of cardiac reserve and have resumed a reasonably active life. On the other hand, there are those patients, often the younger ones, with minimal signs and symptoms who die suddenly and unexpectedly. There is as yet no satisfactory clinical test which will measure the functional potentialities of the coronary circulation, or even that of the myocardium itself.

If, in an individual with cardiac pain, the physical examination of the heart, the blood pressure, and the electrocardiogram are all normal, the outlook should be reasonably favorable. This is born out with statistics by the studies of Paul White and Bland who reported in 1942 on the prognosis of 500 cases of angina pectoris and 200 cases of coronary thrombosis. The future of a patient with coronary heart disease depends in a measure on his ability and willingness to live within the limits of his cardiac reserve, and in part upon his emotional makeup. Of course it goes without saying that it depends too, on intelligent, sympathetic and kindly medical care.

Our conception of the outlook of the patient with coronary thrombosis has altered materially since Herrick's2,10 papers in 1912 and 1919. He first referred to the milder cases and said that in some instances a complete (that is, a functionally complete) recovery ensues.

Thayer<sup>11</sup> in 1923 wrote, and was one of the first to write with our present guarded optimism, "It must be recognized that coronary occlusion grave enough to result in extensive infarction of the heart wall with all its sequels, may be compensated for to such a degree as to be followed by years of relatively active life, provided that at the onset the heart be spared all strain, and that thereafter the life be properly regulated." Happily a good many cases follow this dictum, especially those in the younger group. The infarction becomes a firmly healed scar and some are even able to engage in sports such as golf, swimming and horseback riding.

There remain to be discussed very briefly the complications of coronary occlusion both during the acute stage and the later stages which affect prognosis. In the acute stage, they are:

- 1. Sudden death, usually due to ventricular fibrillation.
- 2. Left ventricular failure, manifested by
  - (a) Gallop rhythm
  - (b) Dyspnea and orthopnea
  - (c) Pulmonary congestion
  - (d) Cheyne-Stokes respiration
  - (e) Pulsus alternans
- 3. Rupture of the infarcted area of myocardium, three days to four weeks after thrombosis.
- 4. Cardiac arrhythmias, of which the most important is ventricular fibrillation; and embolic phenomena.

Later complications are:

- 1. Left ventricular failure, followed by right ventricular failure.
- 2. Recurrent attacks of angina pectoris.
- 3. Recurrent episodes of coronary thrombosis.
- 4. Aneurysmal dilation of left ventricle.

Although it is not within the scope of this paper to discuss treatment, a very short outline of the treatment of coronary thrombosis with treatment of complications may be in order.

1. Relief of pain, by morphine and atropine.

- 2. If collapse and unconsciousness, adrenalin, caffein, or coramine. Unless there is collapse these are contraindicated.
- If shock, concentrated glucose intravenously.
- Oxygen.
- 5. Some men use routinely aminophyllin intravenously, value probably questionable.
- 6. Diet, liquids in small amounts for the first few
- 7. Most important, complete physical and mental rest. Treatment of complications:
  - 1. Quinidine for paroxysmal ventricular tachycardia. Dose: gr. 11/2 to gr. 2 followed in 2 hours by gr. 3, then gr. 5 every 2 hours until abnormal rhythm abolished. Not more than six 5-grain doses at 2-hour intervals.
  - 2. Auricular fibrillation if persistent may need digitalis. Digitalis in general contraindicated during the first two weeks. Congestive failure better treated by mercurial diuretics.
  - 3. If heart block, adrenalin with caution.
  - Care in use of insulin in diabetics.

Most important of all, however, is the understanding care of the physician who is scientist enough to believe in and practice with all his skill the art of medicine.

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### CORRECTION

Through one of those unaccountable oversights that occur every so often notwithstanding vigilance, the excellent paper of Dr. W. G. Richards, "Body Minerals," that appeared in the September issue of JOURNAL-LANCET, gave Dr. Richards' address incorrectly as Grand Forks, North Dakota. Dr. Richards is a member of the Yellowstone Valley Medical society and resides at Billings, Montana, and it was through no fault of his that he was seemingly moved into another state by mistake.

## ADDITION

New members of the Montana State Medical association added since the publishing of the roster in October JOURNAL-LANCET are Dr. Edythe Boyd, Whitefish; Dr. Neil Leitch, Kalispell; Dr. J. H. Brancamp, Butte; Dr. R. C. Richardson, Butte. Dr. Richardson completed his fellowship in ophthalmology at Colorado General hospital, Denver, and has become associated with the Murray clinic at Butte. He will limit his practice to his specialty. November, 1945 391

## Management of the Common Cardiac Irregularities\*

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ISTURBANCES in the rate and rhythm of the heart are frequent. They are many times mismanaged, probably due to failure fully to appreciate the factors involved. Because of this, I believe such a discussion as follows is always a timely subject. Cardiac arrhythmia, or irregularity in the heart's action, occurs when the sinus rhythm is disturbed, when impulses arise in other localities than the sinus node for one or more beats or when there are disturbances in the transmission of the impulse.1 The significance of each type of arrhythmia depends on the circumstances under which it occurs and the clinical condition of the patient in whom it is observed. The more widespread use of the electrocardiogram has led to new interest and accuracy in the diagnosis of these conditions. Yet, as Sir James Mackenzie said, "The eventual use of machines in diagnosis is to teach us how to do without them."

There is little doubt in my mind but that the large majority of cardiac irregularities can be diagnosed from the history and physical examination alone. In most instances the arrhythmia will be one of the four most common types, namely, (1) sinus tachycardia, (2) premature contractions, (3) paroxysmal tachycardia, and (4) auricular fibrillation. It is primarily these four conditions that I wish to discuss in this paper. Each may usually be diagnosed from the history and physical examination with the possible exception of those cases in which the diagram becomes confused between extrasystoles and fibrillation, when it is sometimes necessary to resort to the electrocardiogram to determine the condition.

SINUS NODE IRREGULARITIES

The sinus node irregularities in general compose a benign group consisting of the respiratory arrhythmia, the bradycardia and the tachycardia. This respiratory arrhythmia usually results from the action of the vagus on the sino-auricular node. It occurs most frequently in children and young adults and its main importance lies in its differentiation from other arrhythmias. It is accentuated by deep breathing (thus aiding in diagnosis).2 Sinus bradycardia is a term which designates a slow rhythm with a rate below 60 and in itself has no clinical significance. Sinus tachycardia, however, may frequently produce a problem which taxes the physician's patience and resourcefulness. Arbitrarily, any sinus rate above 100 in an adult is considered a sinus tachycardia. It usually results from a disturbance of the tonal control of the cardiac nerves or possibly from some changes of the blood supplying the sinus node. Many physiologic and organic conditions will cause this accelerated heart rate, but it is the nervous type which I wish to discuss further.

Names such as psychogenic complex, cardiac neurosis, anxiety neurosis, neurocirculatory asthenia 3 are used to describe this syndrome when it is associated with annoying subjective symptoms. Palpitation is the most common \*Presented at fifty-seventh annual session of North Dakota State Medical Association in Fargo, May 8, 1944.

symptom, but restlessness, agitation, breathlessness, and precordial pain may be present. These patients do not have organic heart disease, but their disturbed cardiac regulatory mechanism is only one factor in their general autonomic imbalance. They may be the shy, selfconscious type of individual with a history of nervous indigestion, irritable colon, and other functional manifestations. Because of the nervous picture which these patients present they are sometimes misdiagnosed and treated as suffering from hyperthyroidism.

Treatment of this group of sinus tachycardias is difficult, but I believe much can be accomplished by extreme patience and assurance. Too often the psychogenic makeup of a young adult is not sufficiently evaluated before a course of cardiac management is begun, and, as a result, the anxiety complex continues or is exaggerated. In these cases some medications for a short period or interrupted periods are of value. Sedatives are most useful in this condition, and perhaps the barbiturates are least complicating. Phenobarbital in 1/4 or 1/3 grain doses with or without quinidine three times daily is sometimes of benefit. Also antispasmetic drugs such as Ciba's trasentin, Searle's pavatrine, novatropine and belladonna combined with sedatives are beneficial for a short course of treatment. Digitalis does not seem to be of any benefit in this type of case. In women during the menopause it is not uncommon to have a sinus tachycardia which produces subjective symptoms. This condition will usually respond well to estrogenic therapy.

#### PREMATURE CONTRACTIONS

Premature contractions, or extra systoles as they are often called, are frequently seen in both normal and diseased hearts. These ectopic contractions may arise from any portion of the heart muscle or conduction tissue. As a rule, the premature beat replaces the next ventricular contraction, the ventricular muscle being in the refractory stage when the next regular stimulus reaches it. This compensatory pause is characteristic of premature beats, though it may not be of complete length in the auricular type where the pacemaker is disturbed.

The history of the patient complaining of a "flopping" or "jumping" or "turning over" sensation in the cardiac area makes the diagnosis of extra-systoles suspicious. They are more apt to occur when the heart rate is slow, and on auscultation the regular rhythm is broken by an audible premature beat, followed by a brief pause. The sound of the premature beat is often characterized by one tone when the contraction is too weak to open the aortic valves. Coincident palpation of the pulse reveals no wave or one of diminished volume.

It must be remembered that one of the most valuable signs of digitalis intoxication in a patient with normal rhythm is the appearance of premature beats. Sometimes a coupling with premature contractions may occur in patients with severe myocardial damage. It is in this type

of patient that the margin of safety between the therapeutic and toxic dose of digitalis is narrowed. The appearance of this rhythm in a patient receiving digitalis indicates immediate cessation of the drug. The frequent occurrence of premature beats in a patient with fairly rapid heart rate may be quite difficult to distinguish from auricular fibrillation. In both there may be present an irregularity of force and rhythm of the pulse with a pulse deficit. Mild exertion to accelerate the pulse rate will sometimes temporarily stop the irregularity if it is due to extra-systoles, if to fibrillation the irregularity will continue. Frequent, careful examination of the patient will usually differentiate the two, although an electrocardiogram may be necessary.

In the management of the patient with extra-systoles, it is again of great importance that we give unqualified assurance to those who have no evidence of organic heart disease. (This comment reminds me of a female patient, whom I have had under my care for the past several years, and the relating of her case briefly will help to emphasize this point. She is now 72 years of age and has had premature beats for the past thirty years. At the onset of this condition she was led to believe that she had a "bad heart," This has continued for some thirty years, and she is still in quite good physical condition.) Sometimes the etiological factor in premature contractions is quite simple and easily removed if located. The combination of fatigue, worry, and increased use of tobacco is a common cause. Foci of infection such as apical abscesses of the teeth and cholecystitis are responsible for some cases. In those patients with irritable hearts having frequent premature beats and periods of tachycardia the use of quinidine and phenobarbital may be indicated. Infectious diseases, especially pneumonia, often show premature beats at some time during their course, but no special therapy is indicated in most of these cases.

In patients with organic heart disease the presence of frequent extra-systoles, especially if the heart rate is elevated, suggests an active myocardial affection. When premature beats appear after coronary occlusion, it may be a warning of an impending ventricular fibrillation. The use of quinidine, 3 grains every four hours, is rational therapy to reduce the irritability of the ventricular musculature and lessen the possibility of this fatal rhythm. The appearance of premature beats during digitalization indicates caution. Occurring in a patient with heart disease, who has received no digitalis, the drug should be given if there are signs of myocardial insufficiency. In these cases the irregularity may lessen or disappear with digitalization.

### PAROXYSMAL TACHYCARDIAS

Paroxysmal tachycardias are chiefly recognized by their sudden onset and termination, and their great regularity. We will concern ourselves here primarily with the auricular and nodal varieties which are most common and usually occur in otherwise normal hearts. (Paroxysmal tachycardia of ventricular origin is usually associated with organic heart disease.) Attacks of supraventricular paroxysmal tachycardia may be of a few minutes to a few days in duration and may occur at all ages, most fre-

quently in young adults. Relatively few attacks are seen by physicians, because they usually cease spontaneously or are stopped by methods patients have learned to adopt. Some attacks, however, may become quite serious, if prolonged, and may produce complications such as hemiplegia, thrombotic sequelae, and cardiac failure.

Many attacks of this condition require no treatment, but in the more severe episodes, the patient is greatly distressed by the pounding, choking type of heart action and several methods may need to be attempted before the attack is stopped. All methods of treatment depend upon the same principle-stimulation of the vagus. Patients who have had experience with these attacks are already familiar with such procedures as a forcible attempt to expire, induced vomiting, carotid sinus pressure, and pressure on the eyeballs. (If not, it may be well to instruct uninformed patients in these methods.) It is recognized that the psychic factor may be a powerful one. It may act as a direct precipitating factor for attacks, and even a person in good health may develop a disabling neurosis from distorted notions as to the significance and outlook of this disorder. This, of course, may be true of many cardiac conditions; therefore reassurance must be definite and backed by proved ability to terminate attacks as promised.

If drugs are indicated because of repeated attacks which greatly annoy the patient then quinidine is the best and may be given in 3 to 5 grain doses two, three, or four times daily. It will be found that an occasional patient responds better to digitalis given in subdigitalizing dosage. Also sedatives such as the bromides and phenobarbital used alternately are helpful. Here again, the nervous irritability associated with the climacteric may be contributing to the recurrence of attacks. If such is the case, estrogenic therapy may be all that is needed to control the situation. If the attack itself persists in spite of the usual physical methods, then active medical treatment must be instituted, and quinidine sulfate is the first in line. It should be given in 3-grain doses every two or three hours, after a single initial dose to test for sensitivity to the drug. This dose may be increased in twelve to twenty-four hours if the attack has not ceased.

During the past year, 1943, Sturnick and his associates have reported experience in the use of a soluble preparation of quinidine suitable for parenteral administration in treating the cardiac arrhythmias.6 They indicate excellent results in the treatment of paroxysmal tachycardia with this preparation; however Morgan<sup>5</sup> in his recent summary of the situation indicates that there is still some question of safety in this method-time will tell. Personally, I have never resorted to intravenous quinidine in this condition, for I have found the use of mecholyl (acetyl-beta-methylcholine) more practical and quite satisfactory in the few cases that do not respond to oral quinidine or physical measures. It is of importance to state that this drug should be used with much caution because of the possibility of adverse side effects, such as a marked flushed feeling, profuse perspiration and salivation, and audible peristalsis. The average dose of mecholyl is 10 to 50 mg, given subcutaneously. It is well to give a small dose and repeat it in twenty to thirty minNovember, 1945 393

utes if the heart rate does not become normal. Atropine gr. 1/75 to 1/100 is very effective in controlling the action of mecholyl, and it should be ready in an alternate syringe before starting this treatment. No deaths have been reported from the use of this drug,3 and it is now council accepted for this purpose.

#### AURICULAR FIBRILLATION

Auticular fibrillation may be said to be the most frequent and the most persistent of all arrhythmias, and it is easily the most important of the cardiac disturbances of rhythm. The ventricles are bombarded by the numerous small stimuli from the muscle fiber contractions of the auricles, and because of the refractory period of the bundle of His, only a portion of these pass through to the ventricles. This usually results in a heart rate continuously above 120 per minute and totally irregular in force and rhythm. As the heart rate increases the pulse rate becomes relatively less, because of the greater pulse deficit. Occasionally, auricular fibrillation occurs in short paroxysms in individuals with no demonstrable heart disease. These attacks are likely to follow indiscretions in eating or drinking and accompany severe fatigue and over-exertion. If they do not subside spontaneously within a short time, as they usually do, quinidine and not digitalis is the drug to be used.7 Etiologically, most cases of auricular fibrillation are associated with rheumatic heart disease or degenerative heart disease, and most of them below the age of 40 are due to mitral stenosis.

Of great aid in diagnosis is the discrepancy in the apex rate and the number of impulses palpated at the wrist; also, in taking the blood pressure one will notice no regular upper level of systolic pressure, but rather an irregular group of beats are heard at different systolic levels. With a rate of about 70 or 80 per minute it is easily mistaken for sinus arrhythmia, premature beats, or even normal rhythm. An error here is not of too much importance, because no specific treatment is necessary; however, digitalis should not be stopped because the rhythm "seems nearly regular and of normal rate."

Congestive heart failure is often present in patients with auricular fibrillation, and if it is the first break in compensation, satisfactory results may be accomplished by such measures as bed rest, light diet, limitation of fluid intake and securing sleep with morphine hypodermically. I have many times noticed this effect and have thus postponed the time when digitalis was necessary.

It must be remembered that in auricular fibrillation we find the most striking results of digitalis therapy; however, all cases of this irregularity do not indicate digitalis. We find that the younger rheumatic type of heart disease will respond much better than the older arteriosclerotic one. I have many times been disappointed in the results obtained in elderly patients by the use of digitalis, which, I believe, is an important point to keep in mind with our increasing number of older cardiac patients.

I wish to mention a few other suggestions in the use of this important cardiac drug. Digitalis is contraindicated in paroxysmal auricular fibrillation because it tends to fix the abnormal mechanism and to prolong the paroxysm.8 Digitalis preparations vary in their potency and in their degree of absorption, therefore, it is important to be familiar with the product used. Digitalis should not be used in pneumonia or acute infections unless a basic cardiac indication is originally present. The slow oral method of supplying digitalis to a patient is usually sufficiently effective, and when the intravenous route is used, the dosage is less.

Quinidine sulphate is a valuable drug in the treatment of certain patients with auricular fibrillation. It decreases cardiac irritability and tone and when successful it restores in the auricles a normal sinus rhythm. The ideal cases for this form of therapy are those in which there is not much evidence of heart disease other than the fibrillation, and where the fibrillation has been of short duration (under six months). In using quinidine to terminate auricular fibrillation it is wise to digitalize the patient first and then to proceed with quinidine about as one would in the above paroxysmal tachycardia. Deaths occurring after quinidine therapy are very uncommon when the cases are properly chosen.

#### GENERAL COMMENT

Cardiac arrhythmias often cause a great deal of concern to the surgeon, although they are seldom too serious. The one serious one, as far as risk is concerned, is that of complete heart block of organic nature. Auricular fibrillation in itself is not a contraindication to surgery, providing that it is properly controlled beforehand. Butler, Treeney and Levine a gave the mortality risk as 3 per cent. Extra-systoles have no significance unless when accompanied by other findings of advanced heart disease. History of paroxysmal tachycardia does not contraindicate surgery.

In the prognosis of arrhythmias, it is essential to be certain of the exact condition with which we are dealing. If, after thorough physical and clinical evaluation, there still exists an element of doubt, the electrocardiogram will be very helpful in offering information of prognostic value. As Borg10 has stated in a recent discussion of this subject, "Experience teaches that one must always be guarded in the expression of prognosis, a hazardous matter at best, but electrocardiographic findings will often enable the inquiring physician to evaluate more accurately the risk the patient is carrying and to forecast a course of events otherwise unsuspected.

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# Objective Tests of Cardiac Function

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HE purpose of this paper is to emphasize the usefulness and simplicity of two objective findings in the study of the cardiac patient. These are the measurement of the systemic venous pressure and the circulation time.

### Venous Pressure

A common finding in the patient suffering from congestive heart failure is the markedly distended peripheral venous system. When the increase in the venous pressure is marked the venous distention may be obvious to even the casual observer. However, a method of detecting small increases in venous pressure is desirable.

Non-instrumental methods of estimating venous pressure are often useful in emergencies when the necessary equipment is not immediately available. One of these is carried out as follows: with the patient relaxed in the supine position the arm is slowly elevated and the level at which the anti-cubital vein collapses is noted. The zero point is taken as a point 5 cm. posterior to the junction of the fourth rib with the sternum. The distance from the zero point to the level at which the vein collapses is the venous pressure and should normally be in the range from 3 to 10 cm. Disadvantages of this method are: the veins in obese patients may not be readily visible; the veins in older patients may be so thick-walled that they do not collapse sufficiently to give a good endpoint.

Another non-instrumental method of estimating venous pressure has been suggested by Lewis.6 The level of the column of blood in the jugular veins in normal humans does not rise above a horizontal plane passing through the manubrium sternum. Distention of the cervical veins above this level represents an abnormal elevation of the venous pressure. This method has a shortcoming similar to that noted above, in that it is not practicable in patients with obesity or deeply placed cervical veins.

Many instrumental methods of measuring venous pressure have been described. This discussion will be limited to the direct method of Moritz and Tabora 9 with some minor modifications. The method is simple enough to be used in the office or in the sick room in the home. The patient should be in the supine position with the arm in about 45 degrees of abduction. It is important that the arm be completely relaxed and that no clothing be permitted to impair venous return from the extremity. The arm should be so placed in the horizontal plane that the anti-cubital vein is 5 cm. posterior to the junction of the fourth rib with the sternum. The equipment needed includes a glass L tube of 2 to 4 mm. bore with an adapter to fit an 18 gauge intravenous needle. The tube should be filled with normal saline or sodium citrate solution. The needle is inserted into the vein, the tourniquet is removed and the level to which the column of fluid falls is observed. The distance from the top of the col-

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umn of fluid to the zero point is the venous pressure. The range in normal individuals was found by Moritz and Tabora to be from 1 to 9 cm. of water.

The location of the zero point has been the subject of some discussion. Burwell 8 et al. found that the above described zero point resulted in falsely low values in deep chested individuals. They suggested measuring 10 cm. anteriorly to the surface of the back with the patient in the supine position. The difficulty in locating precisely the surface of the back when the patient is lying on an ordinary bed makes this method somewhat impractical in the ordinary conditions of medical practice.

Richards 13 et al. inserted a catheter into the right auricle via the anti-cubital vein and checked the position by means of x-ray. They found that measuring 7 cm. posteriorly from the junction of the manubrium and the sternum (angle of Louis) gave the closest agreement to the anatomical location of the right auricle. Using this method of locating the zero point we have found at the University of Minnesota hospitals that the range of venous pressure normally is from 1 to 10 cm. of water.

FACTORS GOVERNING VENOUS PRESSURE

The amount of blood in the systemic veins and the pressure which it is under will depend upon a number of factors. (1) The rate at which blood is flowing from the capillaries to the venules obviously will be important. (2) Since the veins possess a muscular wall, variations in muscular tone will influence venous pressure. (3) The amount of blood within the venous system will influence venous pressure. It must be remembered that relaxation of the venous tone may increase the venous capacity and accommodate an increased blood volume without an increase in pressure. (4) Extravascular aids to venous return include respiratory movements and intramuscular pressure. For an excellent review of the effect of respiration the reader is referred to Fishberg's 3 discussion. Gunther 4 has shown that a close relationship exists between intramuscular pressure and venous pressure. He demonstrated that in shocklike states the fall in intramuscular pressure precedes the fall in venous pressure, and that during recovery from shock the rise in intramuscular pressure precedes the rise in venous pressure. (5) Cardiac function will greatly influence venous pressure and will in turn be influenced by venous flow into the right side of the heart. The cardiac output per beat (stroke volume) will be increased by an increase of venous flow and the resultant increase in diastolic filling. In addition the increased pressure within the great veins will cause, by means of the Bainbridge reflex, an increase in the heart rate, thus further increasing the cardiac output per minute.

### VENOUS PRESSURE IN HEART FAILURE

Failure of the right side of the heart is the most common cause of elevated venous pressure. In the early stages of right-sided decompensation the venous pressure

November, 1945 395

may be normal until the veins have become completely filled. With severe right heart failure venous pressure values between 30 and 40 cm, are not uncommon. As the patient improves these values gradually fall, giving the physician a tool in following the progress of cardiac patients.

#### THE APPLICATION OF VENOUS PRESSURE

#### IN DIAGNOSIS

The venous pressure measurement is probably most useful in determining whether peripheral edema is due to right heart failure or to some other cause. The patient with hypertension and nephritis may have edema due either to heart failure or to renal disease or both. If the venous pressure is elevated, heart failure must be at least a contributing factor in the edema. The pregnant cardiac patient may develop edema of the legs during the third trimester of pregnancy. If the venous pressure is normal in the arms one may feel confident that heart failure is not present and that the edema is probably due to obstruction of the venous return from the lower extremities by the enlarged uterus.

The patient with cirrhosis of the liver presenting the signs of edema, an enlarged liver, and ascites may be suspected of having right heart failure. This may quickly be ruled out by the finding of a normal venous

Obstruction of the superior vena cava may be suggested by the finding of an increased pressure in the anticubital veins and a normal pressure in the femoral veins. The reverse would be true if the obstruction were limited to the inferior vena cava.

#### THE CIRCULATION TIME

The velocity of the blood varies in the different parts of the circulatory system. As the circulatory bed widens out in the capillaries, the speed of flow is greatly reduced. As the cross-sectional area decreases as the blood nears the heart the velocity increases. The circulation time may be defined as the time required for the blood to travel over a given portion of the circulation. In this discussion the measurement of two different circulation times will be described.

The arm-to-tongue circulation time (A-TT) is the time required for a particle of blood to go from the anticubital vein to the tongue. The arm to lung circulation time (A-LT) is the time required for a particle of blood to travel from the anti-cubital vein to the pulmonary capillaries. The lung to tongue time (L-TT) or pulmonary circulation time may be obtained by subtracting A-LT from A-TT.

Many methods have been suggested for the A-TT determination. All of them have one or more disadvantages and a detailed discussion will not be entered into here. At the University hospitals we have found Decholin (sodium dehydrocholate) to be satisfactory in most circumstances. It was first used in determining velocity of blood flow by Winternitz.14

The patient should be relaxed in the supine position with the arm at the level of the right auticle. The patient should be asked to signal the instant a bitter taste appears on the tongue. Five cubic centimeters of 20 per cent Decholin is then rapidly injected into the anti-cubital

vein and the time is measured with a stop watch from the start of the injection until the patient gives the signal. In the normal individual the A-TT with Decholin ranges from 10 to 16 seconds.

The A-LT 5 is performed similarly, using 5 minims of ether mixed with 3 minims of normal saline solution. This mixture is injected rapidly and the time measured from instant of injection to the instant when the patient first smells the ether or the observer detects the odor of ether on the patient's breath. The normal range for the A-LT (ether time) is 4 to 8 seconds.

The use of Decholin is not advisable in the presence of significant liver disease. We have never observed any damage from Decholin to the passively congested liver in heart failure Toxic reactions to Decholin have been noted by Leys? but these are not common and have not been experienced thus far at the University hospitels. The injection of the ether mixture not uncommonly causes some transitory discomfort along the course of the veins and occasionally may cause venous thrombosis

Many factors other than heart failure influence the circulation time. Some of these are exercise, excitement, fever, digestion, anemia and hyperthyroidism, all of which increase the velocity of blood flow and reduce the circulation time. For this reason values obtained on repeated determinations may vary rather widely and it has been suggested 2 that an attempt be made to have the patient under basal conditions if one intends to draw any conclusions from serial determinations

CIRCULATION TIME IN HEART FAILURE

As decomposition occurs the velocity of blood flow is reduced This is due in part to an increased cross-sectional area of the circulatory bed as occurs in the pulmonary circulation in left heart failure. In addition, Nylin 10,11 has emphasized the fact that the greatly enlarged heart only partially empties itself with each contraction and this residual blood results in a delay in the distribution of the injected substance from the heart to the lungs and/or the tongue

#### THE CIRCULATION TIME IN DIAGNOSIS

The most important application of the circulation time is in the diagnosis of the causes of dyspnea Bronchial asthma has been shown<sup>1,12</sup> to have a normal A-TT while in cardiac asthma the A-TT will be prolonged

Patients with chronic pulmonary disease and a reduced vital capacity may have also coincident heart disease which could give them left heart failure and contribute to their dyspnea. Heart failure can be ruled out in such cases by the finding of a normal circulation time. Dyspnea due to obstruction of the respiratory trace can also be distinguished from cardiac dyspnea by the normal circulation time.

The presence of a congenital cardiac lesion with a right-to-left shunt is suggested by the finding of A-LT and A-TT that are equal.

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# Rupture of Heart: Review and Case Report\*

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S a cause of immediate death, rupture of the heart has been recognized for many generations. Concomitant with our newer concepts and knowledge of coronary artery disease and myocardial infarction, its clinical significance is being more adequately interpreted. The incidence of cardiac ruptures in acute myocardial infarctions among psychotic, and hence uncooperative patients 1,8,9 leads one to review the subject that a better understanding of the problem be ascertained. Most physicians are cognizant of the fact that in the presence of an acute coronary thrombosis, bed rest, adequate sedation and an intelligent cooperation must be obtained immediately and carried out judiciously. This paper reviews the incidence and genesis of cardiac rupture as a complication of acute myocardial infarction, with a view toward its prevention.

Survey of the literature would indicate that cardiac ruptures occur with greater frequency than ordinarily expected. Antemortem diagnosis can be more readily established if the sequence of coronary artery disease is borne in mind. Occasionally heart ruptures are end results in subacute bacterial endocarditis. Brown and Evans point out that sometimes cardiac rupture results from a calcified myocardial infarct, in which coronary sclerosis is the common cause of primary massive myocardial calcification, as evidenced in ten out of fourteen cases reported. Much less frequently, rupture of the heart may be due to non-penetrating forms of trauma to the chest.

The most common cause for cardiac rupture is that of coronary artery disease in which thrombosis and infarction play the important role. In reviewing autopsy reports 1 of cardiac ruptures, 37,000 necropsies in three large general hospitals showed an incidence of .06 per cent ruptures, while two more recent surveys in private and general hospitals, which included 29,657 autopsies, gave a figure of .29 per cent. Ruptures occurred more frequently in 2,112 coroner's autopsies, 1.2 per cent, and even higher in institutions for elderly patients with mental disturbances (2,374 autopsies with 1.3 per cent). The incidence of cardiac ruptures in acute myocardial infarctions varied from 8 per cent at the Los Angeles County hospital,1 to 9.5 per cent at the Massachusetts General hospital,<sup>8</sup> and up to 73 per cent in Massachusetts mental institutions.9 The age incidence of cardiac ruptures parallels the frequency of myocardial infarction. There is a high incidence of rupture between the ages of 50 and 79. The average age of ventricular ruptures appears to be about 66.1.8.9

Weber's survey 4 showed an average age of 59 in a total of 34 reported cases of interventricular septum ruptures. Other figures indicate that males are affected

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slightly more frequently. Obesity has not been found to be an important factor although it is theorized that increased fatty infiltration into the myocardium lessens collateral circulation, and thereby increases likelihood of necrosis. The sites of rupture show predominance of ruptures in the left ventricle, particularly the anterior portion. The least frequent area involved is the right ventricle. Most authors 1,4 agree that perforation of an infarcted interventricular septum is less likely than ventricular ruptures. The anterior descending branch of the left coronary artery is the one most frequently involved in thromboses that preceded ruptures. 1,6,9 Willius 6 describes this artery as supplying the anterior portion of the left ventricle and contributing to the blood supply of the apex. This vessel is involved in ruptures of all portions of the ventricles and septum except the posterior part of the right ventricle.1 The circumflex ramus of the left coronary artery is next most frequently involved since it supplies the anterior surface as well as the apex of the left ventricle. The right coronary artery may be incriminated since it too may supply the entire posterior surface of the left ventricle. Reviewing the frequency of coronary thromboses one concludes that the right coronary artery appears to be superficial and relatively small with gradual ramifications. On the other hand, the left coronary vessel is larger, has deeper penetrating branches and because it nourishes a greater muscle mass, it is prone to be more serious if thrombosis occurs here.

The size of the infarcts, the presence of scarring in areas of infarction and the relationship of hypertension in a series of 72 cases of rupture of the heart were studied.1 In ruptured hearts where the infarct was 5 cm. or smaller, it was noted that the tension was greater or the necrosis more extensive. Similarly it was found that few hearts with large infarcts could support elevated blood pressure. In the 16 cases of rupture of the heart reported by Jetter and White,9 the infarcts were characteristically large and averaged 4 to 5 centimeters in diameter. In reviewing cases of ruptured hearts, it was found that the height of the intraventricular pressure varied inversely as the size of the infarct. In all cases of myocardial infarction, the hearts which ruptured were generally those in which the blood pressure persisted at 140/90 or above after infarction. Where the blood pressure was not elevated, the number of ruptured hearts was extremely low. The same studies indicated that if scarring is present in the infarcted myocardium, the likelihood of rupture is one-fourth as great as in the unscarred hearts. The scarring appears to increase collateral circulation at the site of infarction so that subsequent areas of infarction are less likely to be soft and friable. Another thought advanced is that an area of infarction containing fibrous tissue is more impervious to ischemia. The conclusions derived from these observations are substantiated by noting that ventricular ruptures occur only

November, 1945 397

with acute myocardial infarctions, before organization and cicatrization take place.

The study 1 revealed that the proportion of ruptures is highest in the group with small or normal (400 grams or less) hearts associated with hypertension, and lowest in the group with large hearts and low blood pressures in a ratio of 6:1. The incidence of rupture in areas of recent infarction is in direct proportion to the amount of myocardium involved, the extent of necrosis, polymorphonuclear leukocytic infiltration and lack of scarring. The chief factors in determining ruptures are the degree of softening of the infarcted areas and the height of the intraventricular pressure.

The time of rupture has been found to be relatively consistent by most authors. Levine 3 states rupture is unlikely before the fourth to seventh day while Edmondson and Hoxie1 showed an average calculated time from infarction to rupture in their 72 cases as 7.4 days. They mention six instances of rupture believed to have occurred one day after infarction. Death occurred immediately after the rupture in nearly all the cases. Other authors 8,9 indicate that in their series of cardiac ruptures following acute myocardial infarction, most deaths occurred within a period of two to ten days. Ventricular ruptures are rare two weeks after coronary insult. In considering interventricular septal ruptures,4 antemortem diagnoses were more readily established here than in ventricular ruptures. This is explained by the relative ease in recognition of the rupture by (a) history (b) E.C.G. changes showing infarction, (c) sudden appearance of a loud systolic murmur and thrills to the left of the sternum and (d) by the relatively longer life span after rupture ensues. Duration of life after murmur had appeared (which indicated time of rupture of the septum) varied from a few days to several months in these cases.

The diagnosis is suggested by history of previous coronary insufficiency or recent acute thrombosis, presence of a small or normal size heart, persistency of, or return to elevated blood pressure, symptoms and findings of infarction, and acute, sudden collapse which immediately precedes death. In cases of interventricular septal rupture, a systolic murmur intervenes after perforation. If sufficient time elapses after the coronary insult, electrocardiographic changes will show evidence of myocardial infarction. All too frequently, the time interval between suggestive symptoms and the consummation in case of rupture is too brief to obtain a confirmatory tracing.

#### CASE PRESENTATION

M. L. W., a white male of 48 who was a farmer by occupation stated that because of extensive abdominal surgery following a gunshot wound many years ago, he was unable to perform heavy manual labor except for intermittent short periods. He had had no medical care for any cardiac ailment. Previous hospitalization included operations for gunshot wounds of the abdomen, intestinal adhesions and fecal fistula. On admission he stated that he had had a severe precordial pain which radiated down his left arm about 10:00 P.M. on August 3, 1944. He had been doing considerable physical labor that afternoon. The acute precordial distress persisted for several hours but no physician was called. The following morning the pain returned and he entered the hospital at 1:00 P.M. complaining of dull pain under the sternum.

Examination on admission showed a fairly comfortable patient of slight build who was mildly dyspneic and apprehensive. His temperature was normal, pulse 76, respiration 16. The heart sounds were distant but of fair quality. No murmurs, cyanosis, edema or ascites were present. The second aortic sound was accentuated. The blood pressure was 176/106. He had two postoperative and gunshot wound scars of the abdomen; a ventral hernia and a right inguinal hernia. An E.C.G. was taken two hours after admission and revealed only myocardial damage. Other laboratory reports were negative.

Patient was fairly comfortable that evening and night. At 4:50 A.M. he complained of a severe pain in the left side of his chest which morphine and atropine relieved. Several hours later the blood pressure was 140/100, pulse 70. At 5:15 P.M. he evinced severe cardiac pain and had marked diaphoresis. His pulse was 80. Morphine and atropine as well as oxygen were administered at intervals throughout the night. He became more apprehensive as the pain became more severe. Precordial pain persisted despite opiates. His pulse became more rapid. He had five emeses after 7:30 P.M. but was able to rest intermittently until 5:30 A.M. when he cried out because of the acute, severe, cutting pains in his chest. He was pronounced dead ten minutes later, forty-one hours after admission.

Autopsy was performed three hours after death. The

essential pathology was found in the heart. The pericardial cavity contained about 150 cc. of blood. The heart weighed 410 grams. A ragged tear 6 cm. in length was present on the anterior surface of the lower third of the left ventricle near the ventricular septum. The rupture had occurred through an infarct, 5 x 3 cm. involving the middle and lower thirds of the myocardium. The infarcted area was greyish, punctuated by recent hemorrhages, soft and thinned out. The myocardium of the right ventricle and the remainder of the left ventricle appeared normal. There was considerable coronary sclerosis throughout. A recent occluding thrombus of the anterior descending branch of the left coronary, midway down the left ventricle, and a partial occluding, less recent thrombus in the left circumflex branch on the lateral aspect of the left ventricle were found Microscopically

## There was an infiltration of red blood cells and young SUMMARY AND CONCLUSIONS

fibroblasts.

1. Cardiac rupture with acute myocardial infarction is more readily recognized with the advent of newer concepts and knowledge of coronary artery disease.

at the site of rupture there was recent extensive necrosis.

2. The incidence of cardiac rupture in acute myocardial infarction varies from less than 10 per cent in general hospitals to 73 per cent among those in mental institutions; age incidence is 50 to 79, slightly higher in males than females; increases with persistency of or return to elevated blood pressure, and with lack of adequate rest and sedation; greater frequency in small hearts with hypertension; greater frequency with large areas of

necrosis, but less frequent where scarring occurs; most frequently within ten days after infarction; most frequently involving left coronary artery and its rami; affects the left ventricle more than any other site.

3. Prophylaxis is cooperative, intelligent understanding of the problem, familiarity with condition, adequate bed rest and sedation after coronary insult.

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# Digitalis: Its Legitimate Field of Usefulness\*

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IGITALIS stands as one of the great achievements of medical treatment. It is the oldest and most useful agent for the treatment of heart disease. Unlike other specific drugs, its action is not on an organism or a toxin but on a mechanism. It supports a failing heart—not any diseased or abnormal heart—but a failing heart. A failure to understand this has led to much indiscriminate and even harmful use of digitalis.

William Withering, an English physician, first reported the employment of digitalis in the treatment of cardiac dropsy in 1785. He set forth clear rules for its use, which, however, were given little attention for more than a century. By Osler's time, doctors were again beginning to use it with some degree of efficiency. But it remained for Dr. Cary Eggleston of New York to place its use on a scientific basis only twenty-five years ago. He taught us how to use digitalis with almost mathematical precision. Following his work and as a result of it, there has been developed a clear delineation of its field of usefulness.

I shall present this subject by briefly discussing first: indications for the use of digitalis; second: conditions in which its usefulness is doubtful; third: conditions in which it is not indicated; and lastly: conditions in which its use may be harmful.

The indications for the use of digitalis can be deduced from an understanding of its action. Digitalis acts upon the heart in three rather definite ways: (1) It depresses the pace-making function of the sino-auricular node, and thus slows the heart rate. (2) It reduces the conductivity of the Node of Tawara and the Bundle of His, which are the paths over which the impulses for muscular contraction of the heart pass. (3) It acts directly on the heart muscle, causing more complete contraction.

There are four indications for the use of digitalis: (1) Congestive heart failure. (2) Cardiac asthma. (3) Auricular fibrillation or auricular flutter. (4) Digitalis may be wisely used as a therapeutic test when it is uncertain whether a slight degree of congestive failure is present, as in the case of very old people with dyspnea of exer-

\*Presented for the Black Hills District Medical Society at Deadwood, South Dakota, December 9, 1943.

tion. These four indications for the administration of digitalis are clear. There are no others upon which there is general agreement, except one doubtful indication which will be mentioned later.

The signs of congestive heart failure—dyspnea, cough, enlarged liver, edema-are easily recognized (and by dyspnea, I do not mean sighing respiration). In an article published in 1940, Levine maintains: "It must be borne in mind that digitalis is indicated in congestive heart failure whether the blood pressure is high or low, whether the rhythm is regular or grossly irregular and whether the rate is rapid or slow. It is to be used in myocardial or in valvular disease, whether fever is or is not present and whether the basal metabolism is normal or elevated. The results to be expected may differ under varying circumstances but the indications for its use remain the same."

The average doctor can easily make the diagnosis of congestive failure. There can be no doubt, except in an occasional patient who has dyspnea as the sole symptom. With such a patient, if the history, the age of the patient, etc., definitely suggest congestive failure, we have opportunity for the use of the therapeutic test. If the patient knows he is receiving digitalis, and does not experience relief, following full dosage, he may be told that he does not have heart failure.

In cardiac asthma (paroxysmal dyspnea), of course, digitalis is useful not during the attack, but in intervals between attacks, as a preventive. The patient here is generally an elderly person, who often responds very kindly to slow digitalization followed by maintenance

Auricular fibrillation, likewise, can in most cases, be diagnosed readily by the average doctor. Most patients with a tumultuous irregularity of rhythm, with tachycardia and pulse deficit, have auricular fibrillation, particularly if the condition has started abruptly with palpitation. Most patients with acute auricular fibrillation receive dramatic relief from digitalis when properly managed-particularly if sedation also is employed with discretion.

Auricular flutter cannot be diagnosed clinically by the . general practitioner and probably not by the cardiologist.

This condition is revealed only by the electrocardiograph. However, the average doctor need give auricular flutter little thought as it is a rather rare condition.

Indication for the use of digitalis in paroxysmal auricular tachycardia is open to question. No one has ever reported successful treatment of the attack by digitalis. However, there have been some reports of digitalis having been used successfully as a preventive in patients who have frequent attacks. Some years ago Levine and Blotner presented four cases in which they found that keeping the patient digitalized had proved effective in preventing recurrence. This is a small number of cases, but Levine reaffirms this position in his recent textbook on heart disease (1941).

I shall now mention several conditions in which there is no indication for digitalis. There is no indication for digitalis in patients who have effort syndrome, palpitation or precordial pain but who do not have heart disease. These patients are the victims of anxiety, nervous exhaustion or both. Many patients and a few doctors believe that digitalis has been of benefit in these conditions. However the benefit is to the mind and not to the heart. This last point is often proved by the small or infrequent doses which these patients tell us give them relief. Digitalis does not exhibit its action except when given in full doses to digitalization and then continued in properly planned maintenance doses.

Digitalis is not indicated in congenital heart disease (per se). These patients generally suffer from anoxemia rather than from congestion. In recent years, I have tried digitalis on two patients who probably have had congenital heart disease. It did not benefit either patient. One of these young patients died about three years ago, but without congestive failure. The other patient, now aged twenty, is in fair health.

During the last ten years, cardiologists have come to the conclusion that there are about three fairly clear contraindications for digitalis, to-wit: acute infectious fevers, acute coronary infarct and circulatory collapsecommonly called shock.

There is, at times, a definite acute infection of the myocardium in pneumonia, scarlet fever, subacute bacterial endocarditis or in rheumatic fever. But congestive failure does not usually occur. Even if it does, digitalis, which is itself a mild protoplasmic poison, should be used with great caution.

For years, many good doctors believed that when a diagnosis of pneumonia was made, digitalis should be

started. But this position is no longer tenable, because of the work of Wyckoff and his associates in 1930. From Bellevue Hospital, at this time, he reported a large series of patients with pneumonia who had received digitalis routinely. There were controls in equal number. The death rate among the controls was about 7 per cent lower than in the patients who had received digitalis. Cohn and Lewis confirmed Wyckoff's position by their work in 1935. The conclusions of these men are now generally accepted. Furthermore, recent work is demonstrating that patients with acute infectious disease, die probably not of heart failure but from toxemia and peripheral circulatory failure.

Digitalis is not indicated in conditions of shock or collapse, for obvious reasons. There is no failure of the heart and there is no primary arhythmia. It is even contraindicated because of the depressant action of the drug upon the pacemaker. By its vagal action on an unfailing heart, it may actually decrease the output. Shock is not well understood. However, we feel fairly sure the circulatory failure is not central but peripheral.

In acute coronary infarct, digitalis is now considered contraindicated because of its probable constrictive action on the coronary arteries. This contention rests largely on theoretical grounds, but cardiologists seem fairly agreed as to its tenability. If congestive failure supervenes some weeks or months after infarction, digitalis is, of course, indicated. However, in this situation, the wise doctor will be cautious in prescribing digitalis.

In concluson, may I suggest that, during the last twenty-five years and particularly during the last ten years, modern research has so carefully delineated the proper therapeutic field for digitalis that we can now consider this drug nearly as truly a specific as sulfathiazole or diphtheria antitoxin. This has been one of the great medical accomplishments of the last generation.

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#### FELLOWSHIPS OFFERED IN NEUROPSYCHIATRY

For the benefit of those interested in neuropsychiatry, the Austin Riggs Foundation of Stockbridge, Massachusetts, has announced that fellowships for three years' training in this specialty are now open. Army personnel who wish to go into this field may apply to Dr. Charles H. Kimberly, Medical Director, Austin Riggs Foundation, Stockbridge, Massachusetts.

## The Treatment of Rheumatic Fever

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S invariably happens when people are kept in close contact for any period of time, infectious diseases become widespread. The crowding of troops in . army camps during the recent war resulted in marked increase in various diseases of infectious nature. Fortunately, most of these epidemics were kept under control by the use of the newer chemotherapeutic agents, the sulfonamides and penicillin. Unfortunately, the chemotherapeutic agents which were so successful in various other diseases had no effect on rheumatic fever. In fact, it has been shown definitely that both the sulfonamides and penicillin are actually harmful when given during the acute phase of rheumatic fever. A very serious spread of rheumatic fever occurred in a number of army and navy camps. Thousands of young men and women developed rheumatic fever and many of them were left with more or less permanent cardiac damage. While no new specific cure has come out of the war experience, the knowledge gained from contact with thousands of cases eventually will lead to real progress.

Drug Treatment. During the past few years, enthusiastic claims have been made concerning the treatment with large doses of salicylates. One report concluded that when such large doses were given, especially intravenously, cardiac damage could be prevented. Stress was laid on the necessity for serum-level controls. This work has not been corroborated-in fact, several recent studies have shown that the salicylates have no effect on the progress of the development of rheumatic lesions. Patients who were receiving adequate salicylate treatment, proved by blood study controls, developed new nodules, increasing cardiac damage, and even died. Further studies revealed what had been known for years, that salicylates are readily absorbed from the stomach and that it is not necessary to give intravenous treatment. Furthermore, parenteral introduction of salicylates is dangerous, produces frequent severe reactions, and in a few instances even death has occurred during such treatment. As a result of all these studies, it is reasonable to conclude salicylates to be the most effective drug available in the treatment of rheumatic fever; but this should not raise false hopes that such treatment has any effect in controlling the infection or prevention of cardiac damage. Salicylates make the patient much more comfortable, but there is no evidence that they shorten the disease. The salicylates, usually in the form of sodium salicylate, should be given in as large doses as the patient can tolerate without developing toxic manifestations. Intravenous treatment is contraindicated and blood study controls are not necessary for practical purposes. No other drug is at present available which is preferable to

Serum, Vaccine, and Transfusions. Many vaccines and serums have been proposed for the treatment of rheu-

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matic fever. There is no conclusive evidence that any of these are effective. Occasionally, small transfusions of whole blood seem to have a favorable effect. During the acute phase of the disease, anemia is frequently present. This should be treated by large doses of iron by mouth. An adequate high-caloric, well balanced diet is necessary. Additional vitamins seem advisable.

Convalescent Treatment. Long continued bed-rest in an optimum environment is the most important single factor in the treatment of rheumatic fever. It is rare to find patients with the fulminating type of disease with severe toxemia and red, swollen, extremely painful joints. Surely the majority of patients in this part of the country have relatively mild symptoms. In spite of this, the disease smoulders for many weeks and months. It is essential that such patients be kept at strict bed-rest until all evidence of rheumatic activity has ceased. It is difficult to keep children in bed for months, especially when this is attempted in the home. The convalescent hospital is ideal for the treatment of such patients. They are much happier and more content to remain in bed when in a ward with other children receiving similar treatment. There is a real need for the development of such hospitals throughout the country. In such an institution, patients not only receive adequate bed-rest, but they are under constant professional supervision. They keep up with their school studies by bed-side teaching and, in the case of older children, receive vocational guidance. Furthermore they are permitted out of bed gradually, during which time various studies are made to determine whether or not the infection has become inactive.

One of the most difficult problems in the treatment of rheumatic children is to determine when it is safe to permit the child out of bed. It is well known that fever and leukocyte counts are not good criteria. Patients with active rheumatic infection may have normal temperature and normal white blood counts. Since the introduction of the blood sedimentation rate, this simple test has been used as a practical method of determining the stage of rheumatic activity. Unfortunately, enough is not known about this test. For instance, we do not know as yet what actually causes an increased sedimentation rate. All texts on rheumatic fever stress the importance of keeping patients in bed until the sedimentation rate is normal. This is a good policy in the great majority of cases. Not infrequently, however, patients are observed continuing. to show an increased sedimentation rate when all other evidence of activity has disappeared. Such patients have been kept in bed for months merely on the basis of a moderately increased sedimentation rate. It seems reasonable in these cases to permit such patients out of bed gradually during which time they are observed carefully. If no evidence of reactivation occurs and if the sedimentation rate does not increase, the patient may become normally active. In several such cases under our observation, the sedimentation rate has returned to normal after the

patient was activated, with no apparent ill effect.

This problem is still unsettled. The clinician will necessarily have to use his best judgment in determining when such patients can become active. It is quite apparent that too much value has been placed on the sedimentation rate. This will be changed after a re-evaluation of the whole problem of the sedimentation rate has been made. Such studies are imperative at this time.

The Electrocardiogram is another means of value in determining rheumatic activity. Frequent electrocardiographic tracings are necessary and this procedure is practical only in a convalescent hospital. When the electrocardiogram becomes fixed and no further changes are noted, it may be concluded that active myocardial disease has ceased.

Tonsillectomy. Tonsils and other foci of infection should not be treated during the acute phase of the disease. It is not necessary to remove the tonsils in every case of rheumatic fever. If there is conclusive evidence that the tonsils are a source of infection, they should certainly be removed. There is no evidence that the removal of the tonsils affects the onset or recurrence of rheumatic infection. The removal of teeth and the draining of sinuses should not be done merely on the basis of a history of rheumatic fever.

On Prevention of Recurrences. A number of studies have appeared in recent literature which indicate that the giving of small doses of the sulfonamides has a favorable effect in prevention of recurrences of rheumatic infection. When children are receiving such preventive treatment, they should be kept under constant supervision as a few deaths have occurred as a result of such procedure. With the introduction of penicillin by mouth, it seems quite probable that penicillin will take the place of the sulfonamides for the preventive treatment of rheumatic fever. Certainly children will be considerably safer receiving penicillin than they were while receiving the sulfonamides. There is no evidence that the salicylates have any effect in preventing recurrences.

Conclusions: (1) No new startling method of treatment for rheumatic fever has been devised. (2) The salicylates still constitute the best drug in the treatment of the acute phase. (3) The most important single factor is convalescent care. (4) Tonsillectomy should be done only where definitely indicated. (5) It is important that the problem of the sedimentation rate in rheumatic fever be restudied. (6) The sulfonamides are probably effective in preventing recurrences but it is hoped that penicillin will soon replace the sulfonamides for this purpose.

## Abstracts of Articles on Heart Disease

The Journal of Venereal Disease Information, published by the Federal Security Agency United States Public Health Service, in its September issue refers to two articles from the American Heart Journal of St. Louis. The first of these papers is entitled Heart Disease in the South: a statistical study of 1,045 cardiac deaths. Contributor—Alice Baker Holoubek; date of publication, February 1945. The reference is as follows:

"The purpose of the study reported in this paper was to determine the etiology of cardiac deaths in the South.

Autopsy records of the Charity Hospital of Louisiana during the period 1935 to 1940 were reviewed, and all deaths due primarily to heart disease were studied and classified etiologically. Since the survey was confined to charity cases, the study covers patients of the lower economic groups only.

Of the 1,045 deaths recorded, 665 (63.6 per cent) were those of Negroes, and 380 (36.4 per cent) white people. Syphilitic cardiovascular disease accounted for 190 (18.2 per cent) of the 1,045 deaths. Of these, 163 were among Negroes and 27 among whites, the ratio being roughly 6: 1. There were four times as many deaths due to syphilitic heart disease among males as among females, considering both races.

Charts are given showing total incidence of syphilitic heart disease by race and age, and the incidence of that condition in different geographical areas of the United States as shown in fifteen studies by various authors is tabulated."

The second reference is to The Incidence of Heart Disease in Puerto Rico: a statistical analysis of 1,081 cases: written by Ramon M. Suarez. Date of publication, March 1945. The reference is as follows:

"The author reports the results of a study of 1,081 cases of heart disease found among Puerto Ricans of all economic and social strata but predominantly among those of the upper intellectual and economic levels. Ninety per cent of these were white and 10 per cent Negro; 67 per cent were male and 33 per cent female.

Findings are compared with those of studies by other authors on heart diseases in Puerto Rico, as well as in Argentina, Mexico, the New England States, and in the states of New York, Virginia, and Louisiana.

In the present study, the incidence of cardio-aortic syphilis among Puerto Ricans was found to be 6.1 per cent, a lower rate than that given by certain other authors, whose studies were, however, confined to low social and economic groups.

A bibliography of 19 references is given."

# ON THE FOUNDING OF A VARIETY CLUB HEART HOSPITAL AT THE UNIVERSITY OF MINNESOTA\*

Cecil J. Watson, M.D., Minneapolis, Minnesota†

So far as I am aware it is a unique occasion in this. country on which a group of public spirited citizens meet to consider the founding of a heart hospital. I count it a privilege to be here this evening, and to have an opportunity to tell you something about the general problem of heart disease, particularly as it relates to the life of the average citizen. It is quite true that diseases of the heart and arteries now stand well in the forefront of the causes of death, easily ahead of the infectious diseases and of cancer and comprising from thirty-five to forty per cent of all deaths. Apart from congenital varieties, there are three principal groups of heart diseases: 1) rheumatic, 2) syphilitic and 3) high blood pressure and arteriosclerosis. Of these three, syphilitic heart disease is the only one which may be prevented. The recent acquisitions in the fight against infectious disease, i. e., the sulfa drugs and penicillin, are helpless against the effects of rheumatic fever. It is true that the continuous administration of sulfonamides to patients who have had attacks of rheumatic fever, does tend to prevent recurrence, but this method has disadvantages and dangers. The cause of rheumatic fever is but poorly understood, that of high blood pressure and arteriosclerosis or hardening of the arteries even less so. The latter conditions are those most often associated with the sudden deaths in relatively young men with which we are all too familiar; men in their forties and fifties who are just at the prime of life and making their finest contributions, both to their family and to society. It is essential that something be done soon about this problem. To a nation whose intellect and resources have fashioned the atomic bomb and introduced the age of atomic energy, it should not be too difficult to encompass this problem of sudden death in men of their prime.

Rheumatic heart disease may kill at any age, either in childhood, early adult life or later. It usually does not cause sudden death, but rather a variable period of heart failure characterized by growing discomfort due to shortness of breath and so-called dropsy, swelling of the extremities and abdomen. Quite commonly there is a long period of normal health between the initial attack or attacks of rheumatic fever in childhood and the ultimate heart failure causing death. In many instances the initial attack is so mild that it passes unrecognized. The individual may have had nothing more than repeated sore throats or tonsillitis and perhaps a few pains thought at the time to be "growing" pains. During the past eight years I have had the privilege, and, at the same time the sadness of caring for an unusually intelligent and charming woman, a wife and mother who died at forty-six of rheumatic heart disease. This woman was unaware of any previous attack of rheumatic fever, knowing of nothing more than tonsillitis and growing pains in childhood, yet the heart valves were scarred by rheumatic disease.

\*Address delivered at the Variety Club Heart Hospital Founder's Dinner, Minneapolis, September 13, 1945.
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It may well be that this long latent period, or the lack of initial symptoms, and hence of any spectacular relationship, is the reason why rheumatic fever and rheumatic heart disease are relatively forgotten in the allotment of funds for research. Last year the March of Dimes alone contributed sixteen and a half million dollars to research on infantile paralysis; while it is very doubtful that a tenth of this amount was provided for rheumatic fever research, yet rheumatic fever is very much more than ten times as important a disease as infantile paralysis, regardless of whether one looks at the matter from the standpoint of crippling or death. Someone has recently gathered statistics to show that for every death due to infantile paralysis, more than five hundred dollars was spent on research, while the corresponding amount for rheumatic fever was but sixteen cents. While no one would decry an all-out attack on polio, it is obviously a twisted and mistaken economy which is characterized by such an enormous imbalance as this. We must admit to a sentimentalism which at times beclouds our sense of perspective.

In our support of medical research, we should give priority to the diseases which are the principal killers, not those which are relatively unimportant. It seems to me that the best possible beginning in this direction is the establishment of a heart hospital such as that envisioned by the Variety Club. In addition to the affording of up-to-date medical care such a hospital will provide clinical material which is essential to medical research. I might emphasize at this point that the "guinea pig" concept is quite unfortunate and ought to be supplanted in lay minds generally, by the realization that the thorough study and care devoted to patients in first-class research hospitals is generally much to their benefit. The more one finds out about a patient, the more often can something real be effected. In other words, medical research and medical care, rather than conflicting with one another, actually go hand in hand, if properly conducted.

The possession of a hospital alone is, of course, not enough for a concerted attack on the problems of heart disease. Investigators and funds for equipment and technical assistance are also essential, but the hospital and its clinical material will attract both men and money. Foundations are much more willing to make grants in aid of research when adequate facilities can be listed as already available. The facilities should include the possibility of continuous association of the research in one way or another with other scientists, such as pathologists, physiologists, chemists and physicists. An association of this type is very difficult to achieve except on the campus of a great university.

Let me say finally that this heart hospital, which the Variety Club has so generously offered to sponsor, will not only make its contribution to the care and study of patients with heart disease, but it will set a shining example to the rest of the country and will thus reflect credit on the Twin Cities and the Northwest.

November, 1945

## .. MEET OUR CONTRIBUTORS

Dr. S. Marx White, Minneapolis, one of the deans of the profession hereabouts, has held presidencies without precedent in state and national medical bodies, lectureships and professorial responsibilities at the state university, the chairmanship of community enterprises and many other honors that an appreciative public accords to eapacity and a willingness to give service. His bestowals on this journal, of a literary character and in counsel, have been generous and incalculably valuable. Northwestern university claims him as a graduate

Dr. Reinhold O. Goehl, clinician of Grand Forks, North Dakota, graduated from the University of Minnesota in 1930 with a cum laude M.B. to amplify his B.A., B.S. and M.D. Following his graduation he took additional work at the University of Indiana and at Minnesota, became a fellow of the American College of Physicians and attained to the Board of Internal Medicine and Cardiovascular Disease. During his fifteen years of practice in Grand Forks he has made an occa-

sional appearance in these columns.

Dr. Arlie R. Barnes, Rochester, Minnesota, having graduated from University of Indiana School of Medicine in 1919, has specialized in internal medicine in which subject he is a professor at the University of Minnesota medical school and to

which he devotes himself at Mayo clinic.

Dr. Harold W. Gregg, Butte, Montana, graduating from the University of Colorado Medical School in 1920, engaged in postgraduate work there, at the University of Minnesota and at Niew York Post Graduate Medical School. This internist has been president of his district medical society, Silver Bow county, and state organization, was formerly a fellow of the American Society of Clinical Pathologists, is now a fellow of the American Gollege of Physicians, member of Sigma Xi and holder of certificate by the American Board of Internal Medicine. A previous contribution to Jounnal-Lancet was on the early history of medicine in Montana.

Dr. George N. Aagaard, B.S. and M.B. as well as doctor of medicine (all degrees from the University of Minnesota) is assistant professor in the department of medicine at that in-stitution. Half of the period since his graduation in 1937 has been apent in practice in Minneapolis where he is affiliated with the University hospitals. Besides county, state and national medical society memberships Dr. Aagaard belongs to the American Heart Association and the Minnesota Pathological Society.

Captain Jack L. Diamond, Fargo, North Dakota, graduated from the University of Nebraska in 1934 and after postgraduate work in courses of the American College of Physicians and "military medical" he became a member of the staff of the United States Veterans Administration Facility. He has been

in the army for something over three years
Dr. Paul P. Ewald, Lead, South Dakota, is a past president of the Black Hills district medical society, one of the most active bodies in the state. He graduated from the medical school of the University of Kanasa in 1918. His last paper in

this journal was published early in this year.

Dr. Morse J. Shapiro, Minnespolis, clinical head of the Children's Heart Hospital and Clinic, finds in the new projected heart center (mentioned in the editorial of Dr. A. E. Hedback and the transcript of the address of Dr. Ceel J. Watson elsewhere in this issue) the outgrowth of trenty-five years of effort. Dr. Shapiro is a product of the University of Minnesota medical school—class of 1917—with a record of graduate work done at that institution in 1928 and 1929 and in Europe in 1925 and 1930. He has practiced in Minnespolis continuously since receiving his degrees, instructing at the university under an assistant professorship. He holds membership in the Minnesota Society of Internal Medicine, Central Society for Clinical Investigation, American Heart association and American Rheumatism association and is a diplomate of the Board of Internal Medicine. He has contributed to our predictine Insules.

Dr. James L. Wilson, Ann Arbor, Michigan, is consultant on respirators for the National Foundation for Infantile Paralysis, associate editor of the American Journal of Diseases of Children, Bellevue professor of pediatrics on the University of Michigan staff and chairman of the Depattment of Pediatrics and Communicable Diseases at University hospital, Ann Arbor, Dr. Wilson, 1926 graduate of Harvard University medical school and for eleven years intern-tesident on the Harvard faculty, has served as associate professor and professor of pediatrics at Wayne University, New York University and the University of Michigan. He likewise went from assistant director to director of the Children's supplied of Detroit in the course of a five year service and was chief of the children's service at N. Y. U. during his professorship there. Dr. Wilson's memberships, besides state medical society, are in the Society of Pediatric Research and the American Pediatric society.

Dr. Cecil J. Watson, professor of medicine and head of the Department of Medicine at the University of Minnesota medical school, one of the first trustees of the Minnesota Medical Foundation, is also consultant to the office of the Surgeon General and secretary on the Committee on Practice of Medicine of the American Medical Association. After noting his membership and services in one office or another of fourteen or fifteen state and national medical and segentific societies the

editorial investigator stopped counting

# MEMORANDUM From the Secretary's Office, American Student Health Association

Dr. Ruth Boynton, chairman of the committee to Coordinate War Efforts, American Student Health Association, conferred on May 18th with Charles M. Griffith, medical director of the Veterans Administration. This conference considered the adoption of a policy by the Veterans Administration for the treatment of veterans pursuing a course of vocational training.

On July 24th, Frank T. Hines, administrator of the

Association, sent out the following directive:

"Reference is made to Public Act 16, 78th Congress, under the authority of which beneficiaries of the Veterans Administration are pursuing a course of vocational training at various educational institutions throughout the country.

Inasmuch as such trainees are entitled to medical care for the purpose of preventing an interruption of training, and as it is believed advisable that every effort should be made to keep veterans in training to the fullest extent possible, it is desired that medical or hospital care for illnesses of relatively short duration be provided by the institution, if available.

Accordingly, it is requested that institutions with which contracts have been made for vocational training under the provisions of Public Act 16, 78th Congress, be required to furnish your office a statement indicating the nature and extent of medical services available through payment of the health fee, and a statement of medical services available and the fees charged therefor, which are not covered by the health fee.

The statement of medical services available and the fees to be charged for such services not covered by the health fee should be accepted as a supplement to any contracts now in effect with the institutions covering vocational training under the provisions of Public Act 16, 78th Congress. Immediately after the supplements to the contracts have been approved, you will authorize the institutions to provide medical care of the nature covered by the supplements as required to those trainees, listing them by name, already enrolled, and will issue a similar authority for each trainee subsequently enrolled, these authorities to remain in effect as long as the trainees covered thereby are enrolled at the institutions.



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MINNEAPOLIS, MINNESOTA, NOVEMBER, 1945

## HEART HOSPITAL

There is a movement on foot, sponsored by the Variety Club of the Twin Cities, to erect a \$325,000 structure on the medical campus of the University of Minnesota, to be known as the Variety Club Heart Hospital of the Northwest.

It is an alarming fact that heart disease has become the greatest killer of man today. It has shown itself to be an even greater scourge than global warfare. Statistics compiled by Dr. H. S. Diehl, dean of the medical sciences, University of Minnesota, show that 227,097 American boys were killed in action in army and navy service during the first two and a half years of the war, while during this same period approximately 1,000,000 persons died from heart disease in this country. Though children afflicted with rheumatic fever may recover from the acute attack, the majority are crippled for life by consequent heart impairment, and their life spans shortened. Yet nowhere has a coordinated program for the study and treatment of rheumatic fever been established. With but one exception there is not an institution on the entire continent of North America devoted to the treatment of heart disease, the single exception being one in Mexico City.

This Variety Club Heart Hospital of the Northwest would, therefore, be the first concentrated onslaught on the number one cause of death in the United States. The research facilities at the University of Minnesota will provide cooperation of all phases of medical science. Not only will it be possible to study rheumatic fever and its effect in childhood but all phases of cardiac disease in adults including surgical technic, when such procedure is indicated. Minneapolis will be known not only as the Flour City at the head of navigation on the Mississippi but also as the heart capitol of the nation.

A.E.H.

#### POLIOMYELITIS

In the August number of this journal appeared an article by Dr. John F. Pohl entitled "The Kenny Concept and Treatment of Infantile Paralysis," in which he discussed the use of the respirator in acute poliomyelitis. He states that in his clinic twenty-three deaths from poliomyelitis have occurred in the past five years and that only thirteen patients have been placed in a respirator and none survived after being placed there. He obviously disapproves of its use.

Death in this dreaded disease seems greatly overshadowed in importance by the tragic, permanent crippling that so much more often occurs. It is perhaps not surprising, therefore, that the details of the treatment of the types of poliomyelitis usually fatal are unfortunately underemphasized and little understood. Much confusion about the use of the respirator, about the term bulbar poliomyelitis, about the different mechanisms that interfere with respiration, is apparent throughout the country. The tecent article by Doctor Pohl adds to that confusion. Many of us who have watched the prolongation indefinitely of the life of hopeless cripples may have wished that the respirator had not been invented. It is here, however, and saves life, often a worthwhile life, and anyone undertaking to care for poliomyelitis patients should understand its use. Proper treatment of patients with respiratory muscle paralysis, however, is actually much less important than those with pharyngeal paralysis with which the first is often confused as these are more common and if they survive offer a far better ultimate prognosis.

Quite apart from the criticisms offered by Doctor Pohl, the greatest harm seems to have been done by the fact that the indications for the use of the respirator have not been recognized clearly. Respiratory distress leading to death can be caused by (1) paralysis of the essential muscles of respiration, the intercostal muscles, and the diaphragm, for the relief of which the respirator, or "iron lung" is specific though, of course, not curative; (2) paralysis of the pharynx, where a great deal can be done to save life but where the respirator does harm, and (3) disfunction of the medullary vasomotor and respiratory centers where little at all can be done to help, although the respirator occasionally may be of some aid. Unfortunately, paralysis of the essential respiratory muscles has not been usually differentiated from disfunction of the cerebral respiratory centers and from the effects of pharyngeal paralysis, and indeed, on occasion this differentiation is exceedingly difficult as any two or all three of these factors at times may be simultaneously present.

It is impossible to take space to analyze and answer in detail Doctor Pohl's paper which follows accurately the Kenny philosophy and indeed seems to this writer to be more philosophy than physiology or anatomy. One can, perhaps, get a fair point of view of the Kenny concept from such a paragraph as this: "The Kenny methods are not primarily concerned with muscle strength, as this factor is of little importance in the restoration of the body to functional activity. It is common to see Kenny-treated patients walking without the use of braces

and with a rhythmic gait in spite of marked loss of muscle power in both lower extremities." It is apparent that an emotional, ostrich-like artitude towards paralysis exists in Doctor Pohl's mind. Most of us will be far more demanding in our criteria for success in treatment than those who are satisfied in seeing children walking with a rhythmic gait without braces. We want to see them running up stairs, two steps at a time, and kicking footballs. No present method of therapy, "orthodox" as Miss Kenny calls it, or her own, can "cure" this disease, but if the casual attitude toward paralysis expressed by Doctor Pohl is taken toward paralysis of the intercostal muscles and the diaphragm, it is to be expected that fatalities will result.

It is not clear what sort of patients were placed in respirators in Doctor Pohl's clinic. It is stated that the thirteen patients treated in a respirator all died. There is no reason for a patient with paralysis of the intercostal muscles and the diaphragm to die from the effects of these palsies when properly treated in a respirator. Death, when it occurs, must be due to bulbar involvement, to aspiration due to pharyngeal paralysis, to pneumonia, to secondary infection, or to exhaustion when the respirator is used tardily. It is hard to understand the terribly bad results reported unless the respirator was misused or the choice of patients bad or unless, by extraordinary chance, there were no patients with respiratory muscle paralysis uncomplicated by bulbar symptoms in his series.

Doctor Pohl states that the respirator causes "hardening" of the chest muscles, a curious effect hard to interpret and one that this writer has not observed. He also mentions that constant lifting of the rib cage by the respirator causes the lower ribs to become permanently elevated or splayed. This is indeed often the case in diaphragmatic paralysis, a paralysis which Doctor Pohl does not mention but which, when it occurs, of course inevitably allows the lower ribs to flare. It is one of the less important prices that the severely paralyzed patient pays for a continuation of life.

It seems very unfortunate that in order to rationalize the excellent muscle training techniques of Miss Kenny, so many pseudo-scientific theories should have been evolved and pressed to their illogical conclusions. That so much preoccupation with these theories by well trained physicians should have occurred is a curious phenomenon in American medicine. It is mysterious by what confusion of anatomy the muscles of the neck supposedly in "spasm" can be thought to inhibit or "alienate" the intrinsic muscles of the pharynx. The hot pack applied with such fetish-like details by the Kenny disciples often gives great comfort and, at its worst, is usually only annoying except in those cases where there is serious respiratory difficulty. Treatment of these patients (patients with pharyngeal paralysis) is a problem where any but the most skillful, gentle and logical handling can do immense harm. Certain very simple but extremely important therapeutic steps need to be followed and these steps easily can make the difference between life and death. This is no place to detail such treatment, but the all-essential features are to give postural drainage and

to learn to aspirate the throat with the minimum of excitement, because it is the high-strung, excited, nervous child that thrashes himself to death with fatigue and exhaustion from attempts to breathe with every inspiration continually interrupted by choking. With many patients it is of utmost importance to avoid excitement or any unnecessary disturbance. Although wrapping hot blankets around the patient's neck may not harm him and may occasionally relieve some neck pain, it is apt to be carried out in a way to seriously prejudice the child's outcome, particularly when it is made the primary part of the treatment and when attempts to feed the child and gavage him are made during the acute stage and aspiration of the throat neglected or done poorly. The respirator itself, when applied to such children whose illness is not clearly complicated by diaphragmatic and intercostal muscle paralysis, adds to the confusion and the harm that so frequently results. The mortality that Doctor Pohl reports of about six per cent is not an unusual hospital mortality in poliomyelitis, but it is cerrainly not one that can in any way be used as an argument for any new form of therapy or for neglect of the respirator which, when properly used, gives dramatic relief from fatigue in even mild respiratory muscle paralysis.

> JAMES L. WILSON, M.D., Professor of Pediatrics and Communicable Diseases, University of Michigan, Ann Arbor, Michigan

# "THE CONSTANT INVADER" ON THE AIR NOVEMBER 3

Announcement is made by Dr. E. A. Meyerding, executive secretary of the Minnesota Public Health Association, that the use of radio on a nation-wide basis for health education will be attempted by the National Tuberculosis association for the first time this fall when "The Constant Invader," a series of thirteen recorded dramatic shows, goes on the air from coast to coast. It is sponsored by the Christmas seal organizations of the state.

The program, presented over WCCO every Saturday at 4:45 P.M. for thirteen weeks, runs from November 3. The entire series deals with tuberculosis control and is narrated by Dr. A. J. Cronin, author of "Hatter's Castle," "The Keys of the Kingdom," and "The Green Years."

Dr. Cronin's next book is to be about a man engaged in tuberculosis research.

Another broadcast in the series deals with advances in medicine and surgery for the treatment of tuberculosis. It gives the historical background of the tuberculosis campaign, dramatizing Laennec's invention of the stethoscope, Koch's discovery of the tubercle bacillus, Roentgen's discovery of the x-ray, and Trudeau's discovery of the rest regime.

Included in the thirteen broadcasts is a play which dramatizes the role of the family doctor in the tuberculosis campaign. It tells the story of one family doctor who solved the mystery of positive reactions among members of a family.

The broadcast on medical research dramatizes the longrange experiments of Professor Rudolph Anderson of Yale university on the chemical analysis of the tubercle bacillus.

Other subjects included in the series are: the ways in which community agencies work together toward the solution of the TB problem, the work of the public health nurse in a rural community, tuberculin testing in schools, an industrial x-ray survey, the necessity of examining family contacts, modern sanatorium care, a typical college health program, tuberculosis as a problem among old people, the value of rehabilitation, and health education.

## Book Reviews

Radio in Health Education, a symposium prepared under the auspices of the New York Academy of Medicine. New York: Columbia University Press, 120 pages including index and appendices; 1945, price \$1.60.

While in no sense a handbook on how to conduct a radio program, this stimulating, provocative volume, the first in a series devoted to public health education, does suggest several ways to use radio more effectively. For instance, the doctor should talk to his listeners rather than to the subject. Although his mind may be on heart disease, cancer or diabetes, to have a good radio personality the doctor must make each listener feel that the listener is being uniquely addressed.

Radio is a frontier land for health education; its value is still to be realized. This book presents a critical evaluation of objectives and techniques. The first part of the book is a report of a survey made by the New York Academy of Medicine; the second part consists of papers presented at the Academy's 1943 Health Education conference. Contributors include Doctors Arthur F. Chace, Donald B. Armstrong, Iago Galdston, Alan Gregg and Ernest L. Stebbins; radio executives Frank Ernest Hill, Willard D. Egolf, Lyman Bryson, Miller McClintock, and Leon Goldstein; Paul F. Lasarsfeld and Patricia Kendall of the office of radio research, Columbia university; and Philip H. Cohen, formerly with the office of war information.

Fertility in Women, by Samuel L. Siegler, M.D., attending obstetrician and gynecologist, Brooklyn women's hospital; attending gynecologist, Unity hospital; attending gynecologist, sterility clinic, Greenpoint hospital; consultant in gynecology, Rockaway Beach hospital, New York. Philadelphia: J. B. Lippincott Co., 450 pages with 194 illustrations, 1944, \$4.50. Fertility in Men, by Robert Sherman Hotchkiss, M.D., assistant professor of urology, New York University medical college; instructor in surgery (urology), Cornell medical college; assistant visiting attending physician, Bellevue and New York hospitals, New York. Philadelphia: J. B. Lippincott

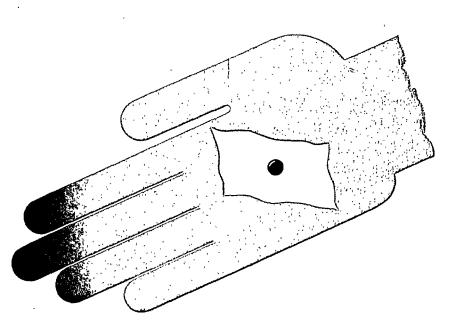
These two companion volumes summarize the literature and the authors' experience in diagnosis and treatment of infertility in the male and female.

Co., 216 pages with 95 illustrations, 1944, \$3.50.

In the longer book, dealing with fertility and sterility in the female, the writer presents all that is known in this field in a detailed manner for practical use and guidance of the practitioner. The text concludes with a chapter dealing with the intrinsic and extrinsic factors and the treatment of abortion.

The shorter volume presents the author's studies and the results in treatment of numerous cases, together with detailed methods of treatment to assist the practitioner.

Both authors emphasize the importance of careful clinical and laboratory examinations as a guide toward diagnosis and the subjects are written in clear and readable style.



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## News Items

Mrs. Baughman, Madison, South Dakota, past president of the Women's Auxiliary to the South Dakota State Medical association, sends this encouraging reply to inquiry about the health of Dr. Daniel S. Baughman, past president of the State Medical association: "Doctor is gaining every day and helping his partner a little, but is not strong enough, really, to go back into practice. He feels fine but tires easily." Dr. Baughman's legion of friends trust he will be completely restored shortly.

The Yankton District Medical society, one of the most energetic in South Dakota, met September 20 at Yankton with fifty present and heard Dr. Herbert C. Leiter, of Sioux City, Iowa, on "Diagnosis, Etiology, and Management of Some Common Skin Disorders in General Practice" and Dr. W. L. Meyer of Sanator, South Dakota, on "Diagnosis and Post-Sanatorium Treatment of Tuberculosis." Dr. Meyer is superintendent of the State Tuberculosis hospital at Sanator.

Dr. John F. Briggs, St. Paul, Minnesota, successfully passed the written examination for Fellowship in the American College of Chest Physicians held in June 1945, and will be awarded his fellowship certificate at the next convocation of the college. The convocations are held in conjunction with the annual meetings of the college which will be resumed again in 1946.

The Fergus County Medical association of Lewistown, Montana, at its September meeting, welcomed back Major Paul Gans, and Captain Raymond Eck, recently released from the Army Air Forces, who will resume practice at Lewistown. The association discussed the proposed Montana prepayment plan for medical care. It was the general opinion that the fee schedule would not be sufficient to pay in full for services rendered.

Dr. Fred F. Attix, secretary of the society, made some comments about the American United National broadcasting program of Sunday, September 16, 1945, in which CIO representatives stated they were supporting the passage of the Wagner-Murray-Dingell bill with their five million-strong membership, and that all other union organizations were in favor of the proposed measure. Mr. Dingell had stated that all medical men who opposed this measure were "reactionaries" and denied that the measure was socialistic. Dr. Attix asked the rhetorical question of whether doctors are so gullible.

Dr. Attix further stated that the present bill is more extensive and pernicious than the former Wagner-Murray bill and will prove to be detrimental to medical progress and achievement, and not in accord with the American way of life. He suggested that action on the consideration of this measure be delayed until such time as the many doctors in the services return to their private practices and have an opportunity to state their opinion. He also suggested that all the various local American Legion posts be communicated with and their members informed that the returning service men will

be taxed, four, eight and twelve per cent on their earnings, depending on the amount of salary they receive, and that their support be enlisted against the bill. They now are entitled to receive service at all veterans hospitals without cost. Numerically they are strong and such a united front could do much to offset the CIO support. President Graham of A. F. of L. of Montana is opposed to the bill.

Regimentation of 150,000 disgruntled doctors, if the bill becomes a law, would undoubtedly prove to be a real menace to all free enterprise and aid materially in advancing our future governmental policies toward a generally socialistic scheme. Said Dr. Attix, "You cannot be half slave and half free. This will prove to be the keystone to an arch of socialism. Let us put a stop to bureaucratic control."

On Thursday, August 23, United States Senator Burton K. Wheeler addressed the Silver Bow County Medical association at a dinner meeting at Butte. From an excellent talk the substance of his remarks follows:

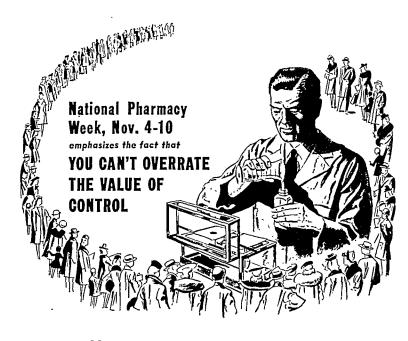
He expressed himself as opposed to the Murray-Wagner-Dingell bill and believes that it has not the slightest chance of passing. He believes that doctors who work for the government under a form of socialized medicine would give most of their consideration to drawing salaries and not to the patients and that most of these doctors would be those who could not make a living in private practice. He said this simply reflects human nature, and that just as competition is the life blood of General Motors vs. Ford, it is also the life blood of doctors. He cautioned the doctors, however, to be watchful and diligent in keeping up with the times, with the public, and especially with medical knowledge.

Grand Forks District Medical society held its September meeting at Grafton, North Dakota, and was addressed by Dr. J. O. Swanson of Fargo on "Internal Fixation of Fractures" demonstrated by x-ray photographs. Guests present were Captains John Gislason and Louis Silverman.

Cass County Medical society of North Dakota met at Gardner Hotel, Fargo, for its September meeting with forty in attendance. Dr. F. L. Wicks, of Valley City, recently retired past president of the North Dakota state association, spoke on the governor's health planning committee. Dr. L. W. Larson, secretary of the state association, gave a survey of medical activities in the state and the status of medical care in North Dakota. A special committee of six appointed to study the aspects of the prepayment plan for the Cass County area, recommended that a procedure be initiated under the sponsorship of the society to include surgical, obstetrical and fracture benefits only, under the name "A Physician's Service Plan." The recommendation was acted on favorably.

On October 3, Lt. Col. Frank B. Queen, chief of laboratory service of Bushnell hospital, Brigham, Utah, spoke to the Silver Bow County Medical association at Butte, Montana, on "Infectious Hepatitis," illustrated with colored slides and motion pictures.

(Continued on page 410)



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### NEWS ITEMS (Continued from page 408)

The Fourth District Medical society of South Dakota met at Pierre, on October 15, and heard Dr. A. V. Stoesser of Minneapolis on "Rheumatic Fever, Its Etiology, Diagnosis, Prognosis, and Treatment." The lecture was illustrated with lantern slides. At a clinic held at St. Mary's hospital a few hours earlier under the auspices of the county division of maternal and child welfare of the State Board of Health, Dr. Stoesser had spoken on the same subject, presenting cases and leading the discussion.

From the 32nd Infantry division on northern Luzon comes word that Captain Edgar G. Ingalls, Jr., of Minneapolis, commanding officer of Company D, 107th Medical battalion—clearing station and hospital for the 32nd Infantry division, has just been awarded the Bronze Star medal for "heroic achievement" in connection with operations against the enemy in the battle of Leyte on November 19, 1944, while in command of Company E of the same battalion.

On the occasion mentioned, Captain Ingalls, whose medical unit was stationed near Pinamopoan Point and had become subject to devastating machine-gun fire during its operations, courageously effected the rescue of a wounded soldier in an exposed position and rendered him necessary medical attention. With further resourcefulness and vigor Captain Ingalls organized and directed evacuation teams for the removal of litter patients to a point of safety until he was finally able to effect the withdrawal of his unit.

Going overseas on August 1, 1942, Captain Ingalls joined the division in November of that year and has participated in all of its campaigns, on the famous "road back" in the bitter jungle fighting of Buna, Saidor, and Aitape, through the wild Ormoc road of Leyte and finally in the epic struggle along the Villa Verde trail of northern Luzon.

Captain Ingalls is the son of Mr. Edgar J. Ingalls, 1720 W. 31st St., Minneapolis. He secured his M.D. and bachelor's degree at the University of Minnesota in 1941 and left his practice in Minneapolis when activated at the beginning of the national emergency.

Col. George F. Schmidt and Major Hamlin Mattson, Minneapolis, have been honorably discharged from the army medical corps and have resumed their practice in Minneapolis.

Dr. N. O. Pearce, Minneapolis, has been appointed tuberculosis control officer of the Minnesota department of health and will direct the state-wide tuberculosis control program made possible by the recent allocation of approximately \$100,000 to the Minnesota department of health by the tuberculosis control division of the United States public health service.

Dr. M. I. Hauge of Clarkfield has accepted a year's residency at Abbott hospital, Minneapolis. Dr. M. A. Borgerson of Hanley Falls will move to Clarkfield and

take over Dr. Hauge's practice.

Dr. Norman Lende has returned to Faribault to the practice he left when assigned to the Panama Canal Zone.

Dr. Martin A. Ruona, Sandstone, physician, surgeon, psychiatrist and administrative officer with the United States public health service for the past nine years, has joined the staff of Shipman hospital at Ely.

Dr. R. R. Hendrickson, Lake Park, has returned to take charge of the Sand Beach sanatorium after a leave of two years during which he served as surgeon in reserve in the United States public health service.

Dr. William A. O'Brien of the University of Minnesota is now at work organizing a staff for a "refreshment center" to be opened in October or November for physicians returning from service and feeling the need of further medical work. The center was made possible by a grant of \$250,000 from the W. K. Kellogg foundation presented for this purpose.

Dr. Harlan A. Alexander, Minneapolis, captain in the medical corps and battalion surgeon through four Pacific campaigns, is home on leave with the army's bronze star and oak leaf cluster.

Dr. I. H. Mauss, director of Pennington county (South Dakota) health department, reported a total of seventy-four children attending five pre-school clinics, all but six of whom needed correction of an ailment or inoculation against disease. Fifteen had a positive test for pinworms, fourteen required attention for tonsils.

Dr. Emanuel M. Josephson, New York physician, was awarded a \$19,500 verdict in a federal court damage suit for false arrest instituted a year ago at Rapid City, South Dakota. The doctor contemplates further litigation in the same court for \$100,000.

Watertown, South Dakota, has been visited by an agricultural association agent in the interests of the medical service provided by the government for government contract laborers. The service now extending over fifteen states is a branch of the department of agriculture.

Dr. Harry V. Gibson has been reappointed, for four years, city-county health officer at Great Falls, Montana.

Miles City, Montana, will have a million-dollar 100bed veterans' hospital and provision has been made for a hospital at Minot, North Dakota. The Fort Harrison hospital at Helena, Montana, is being considered as one of a number which it is proposed to expand.

The Montana Tuberculosis association met September 8 at Helena with Dr. E. M. Larson of Great Falls, president, in the chair. Dr. Larson was re-elected for a one-year tenure. Speakers from Denver, Portland and Chicago were heard. Dr. J. L. Mondloch, Butte, described the new tuberculosis case-finding program of Silver Bow county.

Dr. William M. Ross has joined the staff of the Bartron clinic, Watertown, South Dakota.

Colonel Alan Challman, after three years in the Pacific (Australia, New Guinea and the Philippines) as head of the psychiatric division of the Army under General MacArthur, setting up hospitals and training staffs, visited his sister in Minneapolis, where he was director of the board of education's child study department prior to enlistment in 1941.

Dr. Henry Silver of Sebeka, Minnesota, after five years is leaving for Culver City, California.

# Smooth Estrogen Adjustment

# Benzestrol

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 A non-stillene compound developed in the Research Laboratories of Schieffelin & Co., BENZESTROL enables the patient to make the climacteric transition smoothly, without the requirement of indefinite treatment.

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Schieffelin BENZESTROL Vaginal Tablets
Potency of 0.5 mg.
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Literature and Sample on Request

## *<b>Juture Meetings*

The University of Minnesota announces the first of a series of continuation courses in pediatrics for pediatricians November 7, 8, 9, 10. Faculty for the first course will include Irvine McQuarrie, department of pediatrics, medical school; Henry F. Helmholz, department of pediatrics, Mayo foundation; Helen Brooke Taussig, Johns Hopkins University school of medicine; Hugh McCulloch, Washington University school of medicine; Milton J. E. Senn, Cornell University medical college; Charles Anderson Aldrich, Mayo foundation; and members of the faculty of the medical and graduate schools of the University of Minnesota (Minneapolis, St. Paul, and Rochester).

Subjects: Convulsive Disorders; Child Psychiatry; Psychologic Measurement; Speech Problems; Psychosomatic Pediatrics; Physical and Mental Development; Congenital Heart Disease; Rheumatic State and Acquired Heart Disease. Lectures, clinics, demonstrations, and conferences will be held each day from 9:00 until 12:30 and from 2:00 until 5:00 o'clock, except on the last day when the sessions will close at noon. (Two evening sessions.)

Total fee, \$20. \$3 registration fee should accompany application to Center for Continuation Study, University of Minnesota, Minneapolis 14, Minnesota. Balance of tuition will be paid on the first morning of the course. Residents, fellows, and men in the military service will be admitted without the payment of registration or tuition fees.

Living accommodations are provided at the Center for Continuation Study.

The University of Minnesota and the University of Illinois have been established as two of the principal centers for the "refresher" training of physicians who have been in military service to refit them for civilian practice through a gift of \$250,000 from the W. K. Kellogg Foundation to be used in that way over a petiod of five years.

The training was launched to help fill needs revealed by a survey of 21,000 doctors in uniform. Sixty per cent said that on demobilization they wished to take longterm courses leading to specialization, and more than one-fifth wanted short "refresher" courses.

At Illinois new students can start the work at the beginning of any month. Enrollment is limited to 40 at one time. Veterans will be given preference in enroll-

ment, but civilian doctors also are eligible.

The training at Minnesota will consist of three eight weeks periods or blocks of courses, generously supplemented by work in hospitals with actual patients. Courses will be in the Center for Continuation Study and at the Medical school. Ancker hospital, St. Paul, will provide most of the hospital service, although lesser programs will be carried out at University and Minneapolis General hospitals. It is expected that before the program expires it will be one of the earliest activities in the prospective Mayo Memorial building.

The refresher training will be under the general supervision of Dr. William A. O'Brien, success of whose program of courses in continuation was a principal reason for the large grant to Minnesota.

# Necrology

Dr. John Chandler Sessions, 66, Minneapolis, died October 19 at Minneapolis. Born in Kansas, Dr. Sessions came to Minneapolis fifty years ago, attended that city's schools and graduated in 1902 from the University of Illinois. He ranked a lieutenant-colonelcy at the close of World War I. He had been on the staff of Eitel hospital, Minneapolis.

Dr. Milton S. Fischer, 34, Minneapolis, died October 10 at Swedish hospital, Minneapolis, two hours after a sudden heart attack. A native of St. Paul and educated in its public schools and University high school, Dr. Fischer attended also Union college, Lincoln, Nebraska, and was a graduate of the College of Medical Evangelists at Loma Linda, California.

Dr. Walter Volke, 35, Coleraine, Minnesota, died at Billings hospital, Chicago, October 25. He was born at Bovey, Minnesota, had resided in Chicago and retired from practice.

# Classified Advertisements

### FOR SALE

Minneapolis doctor offers for sale Castle electric sterilizer, 16 inches long, in good condition (merely needs polishing). A buy at \$30. For further information address Box 826, care of this office.

#### ASSISTANCE AVAILABLE

Aznoe's, established in 1896, has available a number of well trained physicians (diplomates of the specialty boards, industrial physicians and surgeons, general practitioners, psychiatrists, tuberculosis specialists and residents). For histories, write Ann Woodward, Aznoe's Woodward Medical Personnel Bureau, 30 North Michigan Ave., Chicago 2, Ill.

#### FOR SALE

Deceased doctor's medical equipment consisting x-ray; fluoroscope; excellent condition; also table and bucky; first class diathermy; lead gloves, heavy rubber gloves, developer, developing tank; two infra-red lamps. Also complete equipment for testing and treating eyes—up to date. Eight-bulb cradle lamp: suction pump: doctor's bag (new): instruments: splints and belts of various types, sizes. To be seen by communicating Mrs. Edith Watson, Browns Valley, Minnesota, or call Bernice Bates at Main 7974, Minneapolis.

### HELP WANTED

Detail men for Minnesota and Wisconsin. Must be experienced calling on physicians and pharmacists and be acquainted wholesalers in territory. Pharmacist's degree or equivalent,—so much the better. Salary, bonus and expenses. Address Box 827, care of this office.

#### WANTED

Physician for general practice and obstetrics, also to assist in surgery in Minneapolis. Good opportunity for diagnostic training. X-ray facilities and complete clinical laboratories. State school, year of graduation and internship. Address Box 828, in care of this office.

# Advertisers' Announcements

### SIR ALEXANDER FLEMING HONORED GUEST ON JULY 3 SCHENLEY RADIO PROGRAM

Sir Alexander Fleming, discoverer of penicillin, is among the outstanding men of medicine appearing as distinguished guests in the radio series, "The Doctor Fights," Schenley Laboratories program which dramatizes episodes of medical heroism and achievement on battle fronts, aboard fighting ships and in the laboratories and hospitals where crucial victories in the field of medicine and surgery have been won. Each week, the doctor whose real-life achievements provide the theme for the broadcast participates as guest of honor.

Sir Alexander came before the microphone in July when the radio series re-enacted the dramatic events leading to the world famous British scientist's first realization that something secreted by an unwanted mold was mysteriously dissolving cultures of deadly bacteria in his London laboratory.

Sir Alexander predicted that "we are only at the beginning of this great study." Referring indirectly to the once momentous problem of producing penicillin in quantities sufficient to save human life, he expressed his own high tribute to the American scientists and manufacturers whose achievement of mass production has saved thousands of lives in war and at home.

Sir Alexander's address was his first introduction to an American radio audience. A dramatization, re-titled, "The Magic Drug," was built around his discovery of penicillin and the life story of Dr. Fleming, whose part in the radio play preceding the address was portrayed by Ronald Colman, British-born celebrity of the theater.

## ENTER "GERIATRICS," A BIMONTHLY

A new bimonthly medical journal, GERIATRICS, devoted to research and clinical reports on the processes and the diseases of the aged and aging, will appear in January, Modern Medicine Publications announces.

For some time the need for a journal of this type has been increasingly apparent. The field among patients of fifty and over is growing steadily. By 1975, it is estimated that 40 per cent of our population will be in that group. Whatever information serves to increase the life span of the individual, whether a matter of diagnosis and treatment, surgical intervention or proper nutrition, is very much in accord with the thinking of the times. The editorial direction of Geriatrics will stress the investigations and advances made in the study of geriatrics and report on the clinical applications of new developments.

The editor is Dr. A. E. Hedback, who has been the editor of Modern Medicine since its inception. The editorial board serving with Dr. Hedback consists of a group of distinguished medical authors and editors, specialists in the field of geriatrics.

## Research Animals Travel by Air

The hamster, a rodent, has joined the odd fraternity of animal life that has been flying the air express routes in the interest of science. A shipment of six hamsters has been air expressed by the University of Colorado to the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine. They will be used in cancer research. Scientists consider hamsters better than rats or guinea pigs for experimental purposes, because they are more susceptible to human diseases.

#### News Items

Dr. B. A. Bobb, Mitchell, South Dakota, has retired after more than fifty years as practicing physician and surgeon. His practice will be taken over by his nephew, Dr. Edward Bobb, son of Dr. C. S. Bobb, who continues as senior member of the partnership.

The North Dakota State Medical association has gone on record as favoring the appointment of Capt. Watson B. Miller, Washington, D. C., as federal security admin-

istrator, succeeding Paul V. McNutt.

Dr. B. W. Friedland, Watertown, South Dakota, will locate in Lakota, North Dakota. Dr. F. C. Kohlmeyer, who has been the only physician at Lakota and in all of Nelson county as well, has closed his office and will study at Washington university.

A new Public Health Center, representing a consolidation of health services in the city, has been opened at 240 South Fourth Street, Minneapolis.

Dr. H. B. Frock, Lemmon, South Dakota, has taken a year's leave from practice for health reasons. His of-

fice has been taken over by Dr. T. O. Sandbo, pioneer Lemmon physician, who has returned to practice.

Dr. J. Horton Daniels, Minneapolis, medical missionary at the University of Nanking until late in 1941, will return to China late in 1945. In the interim he has been with the Students' Health Service, University of Minnesota.

Doctors returning to practice from the armed services include Lt. Col. A. C. Johnson, Great Falls, Montana; Capt. Ray Eck, Lewistown, Montana; Dr. Ralph Vinje, Beulah, North Dakota; Capt. Paul Cook, Valley City, North Dakota; Capt. Harry O. Anderson, Wichita, Kansas; Capt. L. V. Berghs, Owatonna, Minnesota; Dr. Carl H. Winquist, Crosby, Minnesota; Dr. P. J. Pankratz, Mountain Lake, Minnesota; Dr. P. S. Rudie, Duluth.

Dr. and Mrs. H. A. Miller, Fairmont, Minnesota, have returned from a three-year residence in Monroe, Georgia, where Dr. Miller was manager of a hospital.

Dr. Orville H. Jones, formerly of Madison Lake, Minnesota, has opened new offices in Mankato.

Dr. A. R. Ellingson, Detroit Lakes, Minnesota, has resumed practice following an illness and convalescence spent at his cottage on Bad Medicine lake.

#### THE LAST CALL! The Final Loan!

The flaming torch of Liberty is a significant choice as the official insigne of the Great Victory Loan.

Raised high to commemorate glorious Victory, the torch also symbolizes vigilance for the new tasks that confront us. The healing of the ill and maimed, the restoring of our sons to a happy and prosperous way of life, the maintenance of a stable economy—these are victories yet to win. To speed these tasks every citizen of the United States is asked to buy bonds again.

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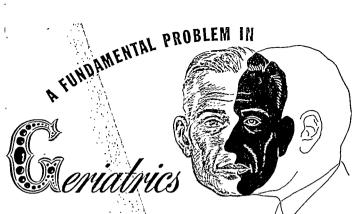
Rambar, A. C., Hardy, L. M. and Fishbein, W. I.: J. Ped. 23:31-38 (July) 1943

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Wolf, I. J.: J. Med. Soc. New Jersey, 38:436 (Sept.) 1941

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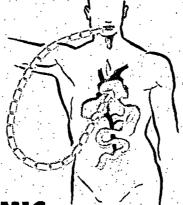
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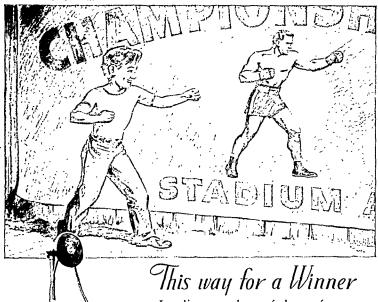
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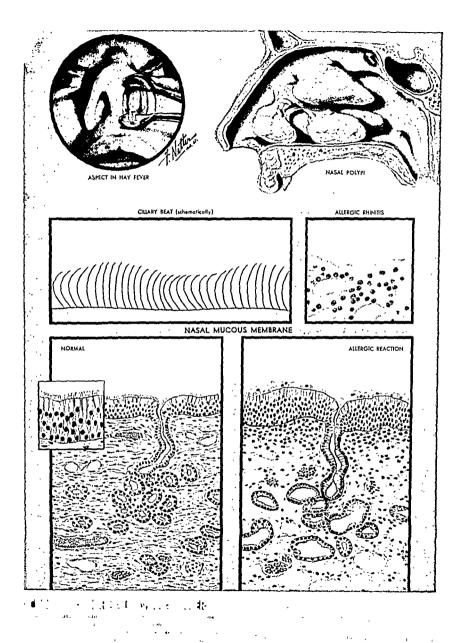


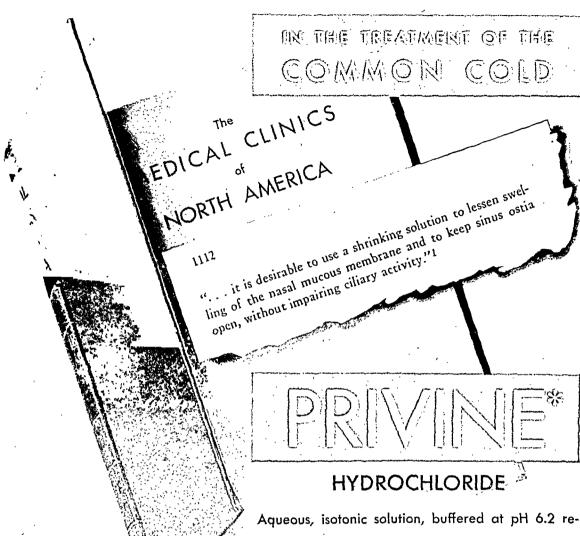
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1. Medical Clinics of North America, 1108, Sept. 1944.

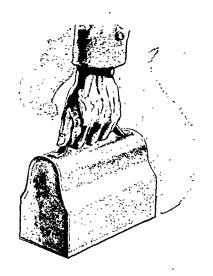
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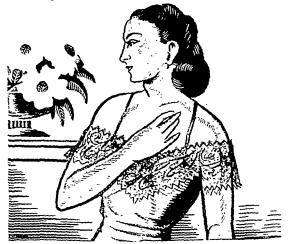
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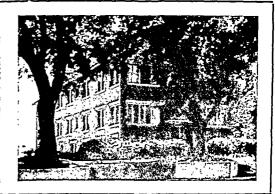
... An integral part of the Miller Vocational High School The Vocational Hospital Offers, in addition to Hospital Care, PRACTICAL NURSING SERVICE FOR HOME PATIENTS. With the course of study (nine months training) by the Board of Education, the practical nurses are trained to co-operate with the Physician in the care of the patient in the home. Salaries are reasonable and only Vocational Hospital Graduates are listed on their registry. For additional information, call or write

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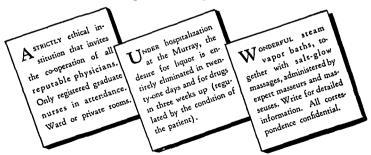
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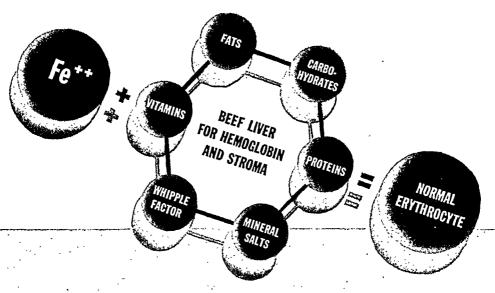
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BEPRON\* supplies whole, unfractionated beef liver with saccharated ferrous iron. Liquid in half-pints, pints and gallons. Capsules in bottles of 100 and 500.

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HEMATINIC PLASTULES\* with Liver Concentrate supply dried ferrous sulfate with liver and yeast concentrates. Bottles of 50, 100 and 1000.

HEMATINIC PLASTULES Plain are effective in uncomplicated iron deficiency anemia. Each Plastule contains 5 grains dried ferrous sulfate with yeast concentrate. Bottles of 50, 100 and 1000.



#### BRIEF HISTORICAL NOTES ON MEAD'S CEREAL, PABLUM AND PABENA

HAND in hand with pediatric progress, the introduction of Mead's Cereal in 1930 marked a new concept in the function of cereals in the child's dietary. For 150 years before that, since the days of "pap" and "panada," there had been no noteworthy improvement in the nutritive quality of cereals for infant feeding. Cereals were fed principally for their carbohydrate content.

The formula of Mead's Cereal was designed to supplement the baby's diet in minerals and vitamins, especially iron and thiamine. How well it has succeeded in these functions may be seen from two examples:

(1) As little as one-sixth ounce of Mead's Cereal\* supplies over 50% of the iron and 20% of the thiamine minimum requirements of the 3-monthsold infant. (2) One-half ounce of Mead's Cereal furnishes all of the iron and 60% of the thiamine minimum requirements of the 6-months-old baby.

That the medical profession has recognized the importance of this contribution is indicated by the fact that cereal is now routinely included in the infant's diet as early as the third or fourth month instead of at the sixth to

twelfth month as was the custom only a decade or two ago.

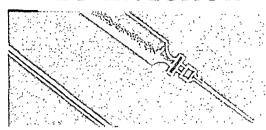
In 1933 Mead Johnson & Company went a step further, improving the Mead's Cereal mixture by a special process of cooking, which rendered it easily tolerated by the infant and at the same time did away with the need for prolonged cereal cooking in the home. The result is Pablum, an original product which offers all of the nutritional qualities of Mead's Cereal, plus the convenience of thorough scientific cooking.

During the last twelve years, these products have been used in a great deal of clinical investigation of various aspects of nutrition, which have been reported in the scientific literature.

Many physicians recognize the pioneer efforts on the part of Mead Johnson & Company by specifying Mead's Cereal and PABLUM—and also the new Pablum-like oatmeal cereal known as PABENA.

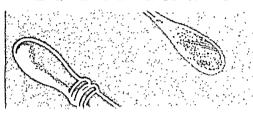
<sup>\*</sup>Pablum, the precooked form of Mead's Cereal, has practically the same composition: wheatmeal (farina), oatmeal, commeal, wheat embryo, beef bone, brewers yeast, alfalfa leaf, sodium chloride, and reduced iron.

#### BY INJECTION



... subcutaneously or intramuscularly, ADREN-ALIN provides rapid symptomatic relief in asthmatic paraxysms; is useful in the prevention and treatment of other allergic reactions; localizes and prolongs the action of local anesthetics. Intravenously, it is used in shock and anesthesia accidents.

#### BY APPLICATION



ADRENALIN permits better visualization of the field, and aids in the diagnosis and treatment of certain conditions encountered in ear, nose and throat practice.

#### BY INSTILLATION



... into the nasal passage, ADRENALIN produces prompt decongestion; in the eye ADRENALIN decreases vascular congestion, and aids in the location of foreign bodies.

#### BY INHALATION



bronchial asthma by relaxing the bronchial muscles.

Its remarkable ability to stimulate the heart and increase cardiac output, raise the blood pressure, constrict the peripheral arterioles, dilate blood vessels of voluntary muscles, and relax bronchial muscles . . . makes ADRENALIN one of the most versatile and useful therapeutic agents at the command of the physician. Little wonder, then, that

it's always kept close at hand in operating room, office, and medical bag.

To permit full use of its many therapeutic applications, there is a form of ADREN-ALIN (Epinephrine) to meet every medical need: Solutions of 1:100, 1:1000, 1:2600, 1:10,000; Suspension of 1:500 in oil; and Inhalant, Suppository, and Ointment.



PARKE, DAVIS & COMPANY

DETROIT 32 . MICHIGAN

## Seventy generations of mankind

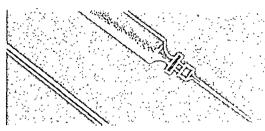


Almadén, one of the world's greatest cinnabar mines, is a monument to the petseverance of seventy generations of mankind who have burrowed in a space of less than six acres without exhausting its mineral resources. The ancient peoples of Spain were not concerned in obtaining the mercury from the ore, but used the ore primarily as a pigment for self-decoration.

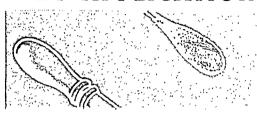
Today, however, one of the mose gratifying applications of mercury is in the field of antiseptics. Prominent in this field is the complex organic mercurial sale 'Merthiolate' (Sodium Ethyl Mercuri Thiosalicylate, Lilly), Announced more than fifteen years ago, 'Merthiolate' has measured up to many of the most critical requirements of the medical profession. Among the preparations of 'Menhiolate' now used extensively is the tincture. Tincture 'Menthiolate' is an alcohol-acetoneaqueous solution. It is recommended for preparation of the operative field, postoperative application to incision, and first and

ELI LILLY AND COMPANY Indianapolis 6, Indiana, U.S.A.

#### BY INJECTION



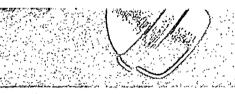
#### BY APPLICATION



#### BY INSTILLATION



#### BY INHALATION



. . . subcutaneously or intramuscularly, ADREN-ALIN provides rapid symptomatic relief in asthmatic paroxysms; is useful in the prevention and treatment of other allergic reactions; localizes and prolongs the action of local anesthetics. Intravenously, it is used in shock and anesthesia accidents.

... for its vasoconstrictor action in hemorrhage, ADRENALIN permits better visualization of the field, and aids in the diagnosis and treatment of certain conditions encountered in ear, nose and throat practice.

:.. into the nasal passage, ADRENALIN produces prompt decongestion; in the eye ADRENALIN decreases vascular congestion, and aids in the location of foreign bodies.

bronchial asthma by relaxing the bronchial muscles.

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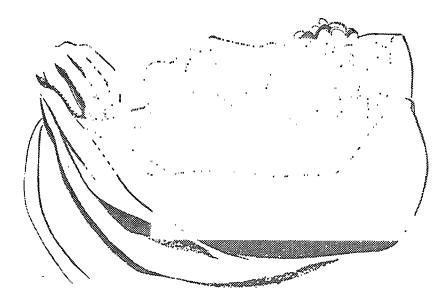


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## Announcing

the attainment of another objective in the field of nutrition



The SQUIBB THERAPEUTIC FORMULA Vitamin Capsule is a *truly* therapeutic mixed vitamin preparation. It is founded on the concept that therapeutic requirements *cannot* be met by any simple multiple of present maintenance dosages.

Squibb Therapeutic Formula, based on practical clinical experience, provides the following dosages of therapeutic magnitude in a single capsule:

SQUIBB Therapeutic Formula



## Different in form

Honey-like liquid form and strictly professional promotion are two unique advantages of Maltine with Vitamin Concentrates. These features afford the physician better prescription control. Moreover, patients are pleased with the pleasant citrus flavor . . . the effectiveness . . . and the economy of this balanced multiple vitamin preparation. Each fluid ounce contains:

Vitamin A
Vitamin D
A Mig. Meet
Vitamin B2
A sid
Dicalcium Phosphate
Dicalcium Phosphale a. s.
Maltine

Maltine Company, New York. Established 1875.

## Maltine with Vitamin Concentrates



TREATING THE ARTHRITIC

#### NOT MERELY THE ARTHRITIS

Darthronol is an outgrowth of the newer knowledge of arthritis, of the multiphasic systemic nature of the disease. It is designed to combat not merely the articular involvement but the almost invariably encountered systemic disturbances-anorexia, loss of weight, anemia, affections of the gastrointestinal and hepatobiliary tracts, impaired carbohydrate metabolism, etc. For this purpose Darthronol combines, in a single capsule, massive dosage of vitamin D2 and adequate potencies of the other eight vitamins concerned with the functional capacity of numerous organs and the integrity of vital processes affected in arthritis. An added advantage is that the amounts of each vitamin in the capsule are automatically increased in a constant ratio, when severity of the disease demands more intensive therapy with vitamin D2.

The second edition of the brochure "Systemic Therapy in the Arthritides" is now available. Physicians are invited to send for a copy.

В. COMPANY ROERIG 536 Lake Shore Drive Chicago 11, Illinois



#### Each Capsule Contains:

Vitamin D (frradiated Ergosterol)
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Ascorbic Acid
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Mixed Natural Tocopherols (Equivalent in biological activity to 3 mg, of Alpha Tocopherol) 3.4 mg.

## RTHRONOL for the Arthritis Introduced AROERIG Preparation

Originally introduced as DARTHRON









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ONLY 3 DROPS

of PRIVINE in each nostril are needed for prompt and prolonged vasoconstriction.

PRIVINE usually provides symptomatic relief from nasal congestion for 2 to 6 hours without reapplication.

PRIVINE is prepared in isotonic solutions, strongly buffered in the same pH as the delicate nasal mucous membranes.



PRIVINE



It is desirable to maintain antirachitic medication in children from infancy up to 14 years of age.

One capsule of Infron Pediatric administered once a month provides sufficient vitamin D for the prevention and treatment of rickets.

Infron Pediatric is readily miscible in the infant's feeding formula, milk, fruit juices, or water, and can also be spread on cereal. Each capsule contains

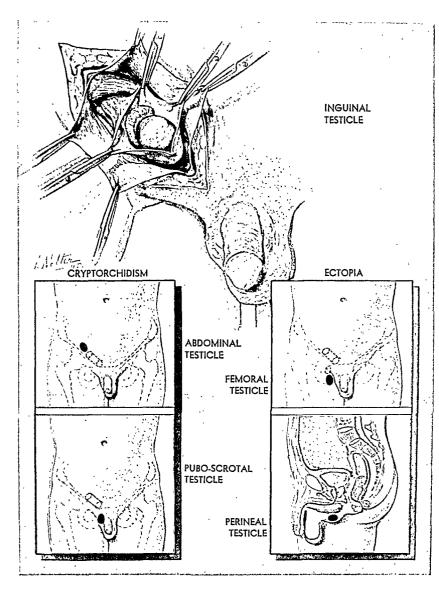
100,000 U.S.P. Units of vitamin D—Whittier Process—especially prepared for pediatric use.

Supplied in packages of 6 capsules — sufficient dosage for 6 months. Available at prescription pharmacies.

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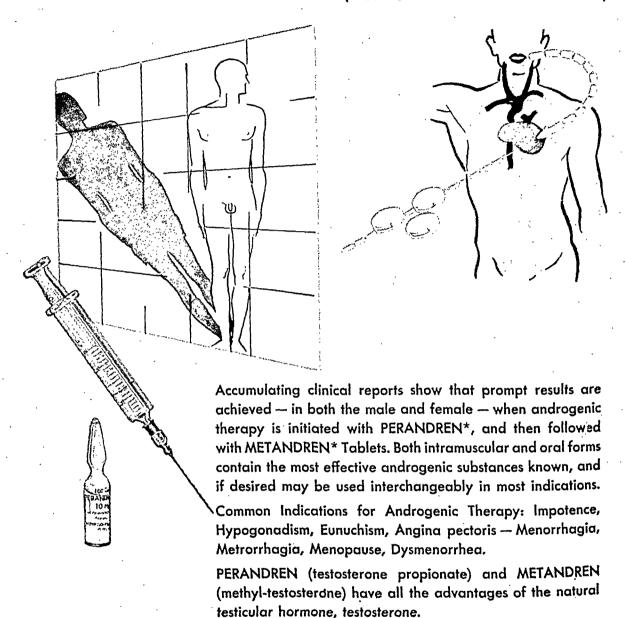
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#### **COMBINED ANDROGENIC THERAPY**

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of Mineral Oil, 65%, with aqueous extract of

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"There apparently exists in the constitution of the dysmenorrheic woman an intrinsic factor that renders her more susceptible to pain ..."\*

Haman, J. O.: Am. J. Obst. & Gynec. 47: 686 (May), 1944.

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## Empirin' COMPOUND

In bottles of 100 and 500 • Each product contains—Acetophenetidin gr. 212 • Caffeine gr. 16 • Acetylsalicylic acid gr. 314 • Also 'Tabloid' 'Empirin' Compound with Codeine Phosphate • 'Tabloid' 'Empirin', Reg. Trademarks





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In severe thermal burns, when protein needs far exceed the limits of dietary toleration, Parenamine provides extra-dietary amino acids to restore and maintain positive nitrogen balance and correct hypoproteinemia\*

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## For protein deficiency

PARENAMINE is a sterile 15 per cent solution of amino acids containing all known to be essential for humans, derived by acid hydrolysis from casein. fortified with pure dl-tryptophane.

INDICATED in conditions of restricted intake, faulty absorption, increased need or excessive loss of proteins such



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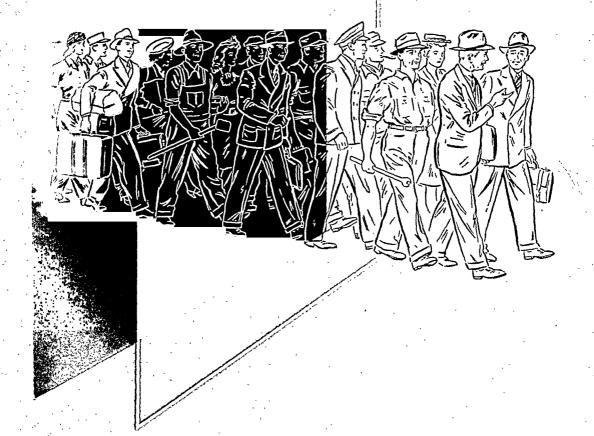
ADMINISTRATION may be intravenous, intrasternal or subcutaneous. SUPPLIED as 15 per cent sterile solution in 100 cc rubber-capped bottles

Reprints and complete clinical data will gladly be sent on request

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Advances in the therapy and care of arthritic patients have considerably increased their chances for recovery....

Many factors have aided in this improved prognosis in arthritis. Patients are seeing their physicians earlier, when more rapid improvement can be expected. The physical and dietetic care of the patient is now better understood. Greater cooperation of the patient is obtained by education, and in general a more scientific approach to the problems is made.

An outstanding contribution to the improved prognosis in arthritis is Ertron — evaluated and proved effective in thousands of cases over a ten-year period.

The results with Ertron therapy have been measured — muscle strength, joint size, weight gain, mobility — all have been tabulated in addition to other valuable information in the extensive studies which have determined Ertron's field of usefulness in the arthritic picture.

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To Ertronize, employ Ertron in an adequate daily dosage for a sufficiently long period to produce optimal improvement. Gradually increase the dosage to the toleration level and maintain this dosage until maximum improvement occurs. Ertronize early and adequately for best results.

Ertron alone — and no other product — contains electrically activated vaporized ergosterol (Whittier Process).

Supplied in bottles of 50, 100 and 500 capsules.

Parenteral for supplementary intramuscular injection.

Ethically promoted.

Ertron is the registered trademark of Nutrition Research Laboratories



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The development of CALCREOSE (Maltbie) has, indeed, "smoothed the rough spots" in creosote therapy so frequently provocative heretofore of nausea and distress. • Moreover, CALCREOSE (calcium creosotate) exerts bactericidal and bacteriostatic action up to three times as great as that of creosote. • Thus, in providing all the well-known benefits of creosote in a pleasant and palatable form, CALCREOSE proves highly effective in many bronchial and respiratory affections...lessening cough, diminishing expectoration, reducing its purulency and deodorizing sputum. Also it tends to stimulate the appetite and improve the patient's general condition.

AVAILABLE: As tablets (4 gr.) in bottles of 100, 500, and 1000. COMPOUND SYRUP CALCREOSE in pint or gallon bottles.

Calcreose

THE MALTBIE CHEMICAL COMPANY - NEWARK, NEW JERSEY





# synthetic B COMPLEX factors

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BETASYNPLEX "NIPHANOID" contains the five important synthetic components of vitamin B complex in dry and stable form for parenteral use.

Large doses in small volume

Each ampul contains:

Riboflavin (vitamin B2, as soluble salt of riboflavin sodium-Pyridoxine hydrochloride (vitamin B<sub>6</sub>)...................... 5 mg. Calcium pantothenate...... 5 mg. Niacinamide (nicotinic acid amide)................. 50 mg.

affective

The addition of only 2 cc. of distilled water yields almost instantly a fresh solution of full potency. The therapeutic efficiency of synthetic vitamins has been firmly established by clinical experience. BETASYNPLEX "NIPHANOID" is of particular value for patients who vomit or fail to absorb oral doses because of other gastrointestinal disturbances.

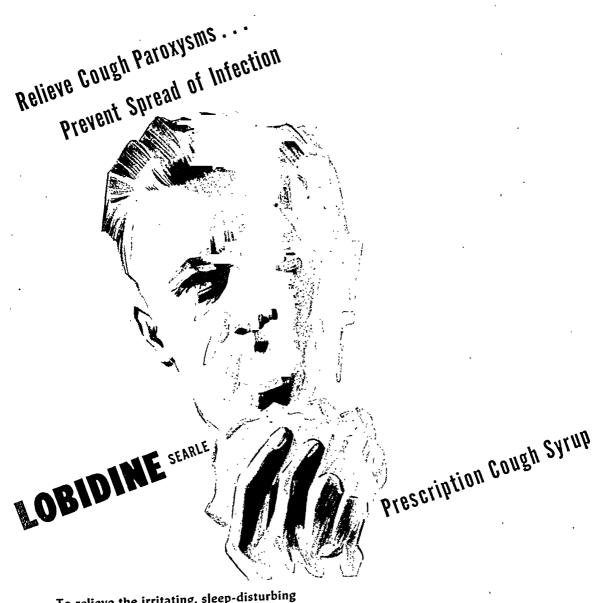
Supplied in boxes of 3, 10 and 50 ampuls.

FOR ORAL USE: BETASYNPLEX TABLETS AND ELIXIR WITH OR WITHOUT IRON

#### BETASYNPLEX "Niphanoid"

WRITE FOR DETAILED LITERATURE

Winthrop Chemical Company, Inc.



To relieve the irritating, sleep-disturbing cough following the common cold, Lobidine combines bronchial sedation

with expectorant action. The sedative action of Lobidine reduces the tendency to cough, thus lessening spread of infection.

Its aid in removing secretions from the bronchi hastens the reparative process,

greatly reducing the cough's duration.

Lobidine is non-narcotic, palatable, easily administered to infants, children, adults.

> Lobidine is the registered trademark of G. D. Searle & Co. Chicago 80, Illinois

# Announcing... PENICILLIN OINTMENT SCHENLEY



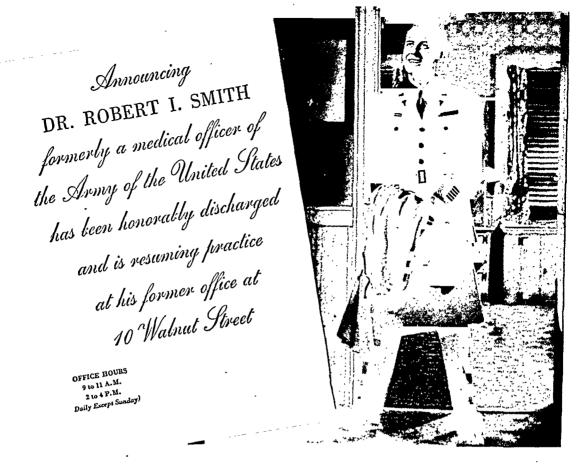
It is possible by topical application to reach local levels of penicillin activity far in excess of the highest ranges maintained by intravenous and intramuscular administration.

Penicillin Ointment Schenley is indicated in the treatment of superficial infections of the skin caused by penicillin-sensitive organisms. In deep-seated pyogenic infections with penicillin-sensitive organisms, the ointment may be used as an adjunct to systemic penicillin therapy and other measures.

When you specify Penicillin Ointment Schenley, you are assured of the highest standard of excellence, because Schenley Laboratories maintains the same rigid program of control for this ointment as it has always maintained for Penicillin Schenley.

#### SCHENLEY LABORATORIES, INC.

Executive Offices: 350 Fifth Avenue, New York City



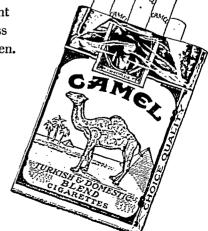
# Welcome Home, Doctor!

Warriors Without Weapons . . . Soldiers in White . . . Marshals of Mercy . . .

The medical men in the war will be the subject of novels, plays, and movies for years to come. But words, pictures... statistics, revealing as they are... won't begin to tell the whole story of the magnificent work you did. Nor will words be adequate to express fully the appreciation and thanks of your fellow men.

The makers of Camel cigarettes join with millions of others in saying, "Well done, Doctor" and "Welcome home!"

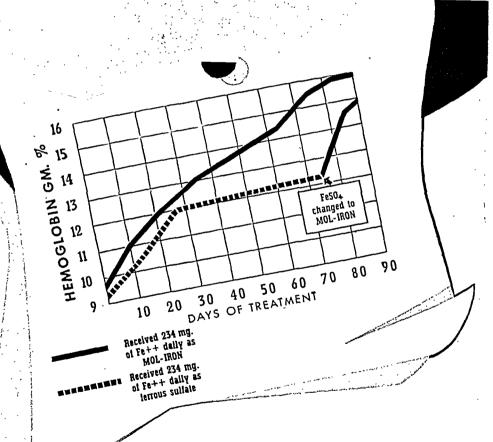
CAMELS Costlier





# a new and definite advance

IN TREATING IRON-DEFICIENCY ANEMIAS



The therapeutically superior effect of Mol-Iron is well demonstrated in the above graph which illustrates the comparative rate of hemoglobin regeneration, in response to treatment with Mol-Iron and ferrous sulfate, in two pregnant women having approximately the same degree of iron-deficiency anemia. This response is typical of that observed in an evaluation of Mol-Iron in a series of pregnant women with hypochromic anemia.



# A specially processed, co-precipitated complex of molybdenum oxide (3 mg.) and ferrous sulfate (195 mg.).

Available clinical evidence indicates that, in hypochromic anemia, the therapeutic response to this highly effective synergistic combination — as compared with equivalent dosage of ferrous sulfate alone — has unusual advantages:

- NORMAL HEMOGLOBIN VALUES ARE RESTORED MORE RAPIDLY, INCREASES IN THE RATE OF HEMOGLOBIN FORMA-TION BEING AS GREAT AS 100% OR MORE IN PATIENTS STUDIED.
- IRON UTILIZATION IS SIMILARLY MORE COMPLETE.
- 3) GASTRO-INTESTINAL TOLERANCE IS NOTABLY SATISFACTORY—even among

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Indicated in: Hypochromic (iron-deficiency) anemias caused by inadequate dietary intake or impaired intestinal absorption of iron; excessive utilization of iron, as in pregnancy and lactation; chronic hemorrhage.

**Dasage:** One or two tablets three times daily after meals.

Available in bottles of 100 and 1000 tablets. Ethically promoted — not advertised to the laity.







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Patients on "Premarin" therapy usually experience a general feeling of well-being in addition to relief of symptoms; this is confirmed by most of the many clinical reports. Rendering the patient symptom-free is, of course, the prime consideration of treatment; many physicians, however, feel that the restoration of a brighter mental outlook is also an important consideration when instituting therapy, "Premarin" will be found to exhibit the desirable characteristics of both the natural estrogens and the synthetic substances. Although highly potent, "Premarin" is derived exclusively from natural sources; it is

exceptionally well tolerated, and unpleasant side effects are seldom noted.

HIGHLY POTENT
ORALLY ACTIVE
NATURALLY OCCURRING
ESSENTIALLY SAFE
WATER SOLUBLE
WELL TOLERATED

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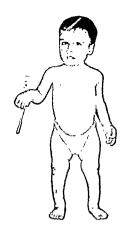
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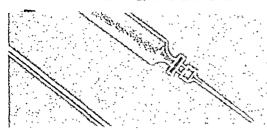
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#### EXIGENCY OF WAR

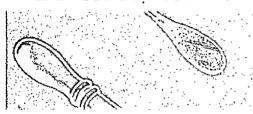
Oleum Percomorphum 50% is now known as Oleum Percomorphum With Other Fish Liver Oils And Viosterol. A source of vitamins A and D in which not more than 50% of the vitamin D is derived from viosterol. The potency remains the same; namely, 60,000 vitamin A units and 8,500 vitamin D units per gram.

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ORIGINAL

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# JOURNAI

New Series Vol. LXV, No. 12

PROCEEDINGS OF THE AMERICAN STUDENT HEALTH ASSOCIATION



Single Copies 25c One Year \$2

#### December, 1945

American Student Health Association, Proceedings	415
Health Service Objectives, Ralph I. Canuteson, M.D.	419
Health Service to Civilians and Military Students, Melbourne Murphy, M.S.P.H., and Warren Forsythe, M.D.	421
Hypofunction of the Lacrimal Gland and the Sjögren Syndrome, Andrew de Roetth, M.D.	423
Diagnosis and Postsanatorium Care in Pulmonary Tuberculosis, W. L. Meyer, M.D.	426
The Prevention of Crystallization and Stone Formation during Constant Urinary Drainage, Howard I. Suby, M.C., A.U.S.	428
BOOK REVIEWS	430
EDITORIALS	
University of South Dakota Medical School Adopts Four-Year Curriculum	
Prevent TB—Buy Christmas Seals	432
	432 432
MEET OUR CONTRIBUTORS	433
NEWS ITEMS	433
NECROLOGY	
INDEX, VOLUME LXV, 1945	
# 1 MAIL	

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Journal of Parting of Parting

# How irritation varies from different cigarettes

Tests\* made on rabbits' eyes reveal the influence of hygroscopic agents

TYPE OF CIGARETTE

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2 Edema 2.1	Cigarettes made with no hygroscopic agent
<b>3</b> Edema 2.7	Popular cigarette #1 (ordinary method)
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5 Edema 2.7	Popular cigarette #3 (ordinary method)
6 Edema 2.7	Popular cigarette #4 (ordinary method)

CONCLUSION:\* Results show that regardless of blend of tobacco, flavoring materials, or method of manufacture, the irritation produced by all ordinary cigarettes is substantially the same, and measurably greater than that caused by Philip Morris.

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•N. Y. State Journ. Med. 35 No. 11,590 \*\*Laryngoscope 1935, XLV, No. 2, 149-154

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Virtually any diet can be enhanced to a point of adequacy through the addition of three glassfuls of Ovaltine daily. Made with milk as directed, this delicious food drink supplies liberal quantities of most essential nutrients, as indicated by the table below. Qualitatively Ovaltine is equally valuable; it provides biologically adequate protein, readily assimilated and utilized carbohydrate, well emulsified fat, B complex and other vitamins, as well as essential minerals. Ovaltine proves advantageous both as a mealtime beverage and a between-meal snack. Its low curd tension insures rapid gastric emptying, hence it does not interfere with the appetite for the next meal.

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CARBOHYDRATE .						62.43 Gm.	VITAMIN D 480 I.U:
FAT						29.34 Gm.	THIAMINE 1.296 mg:
CALCIUM	-	-	-	-	-		RIBOFLAVIN 1.278 mg:
PHOSPHORUS						.903 Gm.	NIACIN 7.0 mg.
IRON						11.94 mg.	COPPER

\*Based on average reported values for milk.



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Vitamin A							3	0	,C	0	0	ŧ	J.	S.P. Units
Thiamine (B <sub>1</sub> )	 													30 mg.
Riboflavin (B <sub>2</sub> )	 		 											15 mg.
Niacinamide	 													150 mg.
Pyridoxine (B <sub>c</sub> )	 													3 mg.
Calcium Pantothenate														
Ascorbic Acid (C)	 . ,									. ,				300 mg.
Vitamin D		 		 				3	,(	)(	0	1	J.	S.P. Units
Alpha Tocopherol (E)	 													30 mg.

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## Proceedings of the Council Meeting of the AMERICAN STUDENT HEALTH ASSOCIATION

Hotel Nicollet, Minneapolis, Minnesota

May 2-3, 1945

The Council Meeting of the American Student Health Association was called to order by the president, Dr. Ralph Canuteson, at the Hotel Nicollet in Minneapolis, Minnesota, on May 2, 1945, at 10:00 a.m.

The minutes of the last meeting, held in Cincinnati, Ohio, March, 1944, were read and approved.

The treasurer's report was read and accepted,

An application for membership in the Association was received from the University of Alabama and passed on favorably.

During the past year, letters of inquiry have been received from the University of Alabama, University of Colorado, Connecticut College, University of Delaware, and the University of British Columbia asking about the organization of Health Service Work, infirmary buildings and development of new phases of student health care.

Dr. Boynton suggested that our organization keep, in its files, up-to-date information on floor plans for infirmaries as well as printed material dealing with various phases of student health services that would be helpful to schools organizing new services.

It was moved by Dr. R. W. Bradshaw and seconded by Dr. Glenadine Snow that each school should be asked to stend in an annual report to the American Student Health Association summarizing the unformation frequently requested by letters of inquiry. The secretary was authorized to construct a questionnaire, to be sent out with the bills, to secure the desired information.

A list of schools whose dues are delinquent was read. After some discussion, it was decided on the motion of Dr. Warren E. Forsythe, and seconded by Dr. J. P. Ritenour, that schools whose dues were delinquent for two years should be offered suspended membership status for a one-year period if they desire to renew active status after the war. The secretary was asked to write to the presidents of the various colleges concerned offering this proposal.

Subscriptions to the JOURNAL-LANCET should not be paid for by our association for the period of suspended membership.

Drs. L. B. Chenoweth, Warren E. Forsythe and Ruth Boyn-

ton were named by the president as a nominating committee to nominate a new secretary-treasurer.

At the luncheon meeting, 12:15 p.m., Mr. Cohen of JOURNAL-LANGET gave an interesting picture of the publication and sketched the relationship of the American Student Health Association to the Journal as our official publication.

Mr. Cohen pointed out the desirability of a good public relations program of publicity for our organization and made some suggestions for obtaining it.

The afternoon was devoted to tours of the health services at the school of agriculture and the University of Minnesota. Tea was served for the council members and health service staff at the University Health Service building.

Dr. I. A. Myers and Dr. Charles E. Lyght discussed problems in the control of tuberculosis at the dinner meeting at 7:00 p.m.

The importance of tuberculin skin testing was stressed by Dr. Myers.

#### Thursday, May 3, 1945

The business meeting was called to order at 10:00 a.m. to hear the president's address read by Dr. Ralph Canuteson (full text reported elsewhere in minutes).

The physical fitness programs being developed throughout the country were discussed in some detail. The importance of college health services establishing real leadership in the postwar physical fitness programs was stressed.

Dr. Ruth Boynton reported on the joint committee activity in publishing a handbook sponsored by the American Medical Association, National Education Association, Association for Health Physical Education and the American Student Health Association. This handbook, to be placed in all the colleges and universities, will cover many aspects of physical fitness

It was moved by Dr. Ruth Boynton and seconded by Dr. C. E. Lyght that the American Student Health Association go on record as stating that college health services are concerned with medical examinations and medical care of students, and with their health education and health supervision and that this

association urge that these aspects of physical fitness be emphasized in whatever program is evolved for post-war promotion.

Reports of the council committees were presented and accepted. Full texts of the reports will appear in the Journal-LANCET.

Dr. George T. Blydenburgh was elected secretary-treasurer to succeed Dr. Helen B. Pryor, who has resigned to return to private practice of pediatrics. It was moved by Dr. C. E. Lyght, seconded by Dr. G. Snow, that the association express appreciation to Dr. Pryor for her work of the past years for the American Student Health Association.

Dr. Canuteson announced the appointment of two new committee chairmen: Dr. M. L. Durfee, who will succeed Dr. H. D. Lees as chairman of the tuberculosis committee; and Dr. Irvin W. Sander, who will succeed Dr. G. T. Blydenburgh as chairman of the committee on health service and physical

Dr. B. D. Roberts was appointed chairman of a new committee on public relations to bring in recommendations as to suitable activities for the American Student Health Association in this field.

It was decided to accept Dr. Ruth Boynton's invitation to hold the next annual meeting in Minneapolis on May 8-9, 1946. A resolution was adopted thanking her for her generous hos-

pitality to the council in 1945.

The luncheon meeting at 12:15 p.m. was devoted to a discussion of "Trends in the Health Service Program" led by Dr. H. S. Diehl. He pointed out the need to educate administration and faculty as to what constitutes an adequate student health service.

At the afternoon session, 2:00 p.m., Major H. E. Bank, medical officer, U. S. Veterans Facility, talked on "Health Problems of Returning Veterans." Methods of cooperation between student health services and veterans facilities in providing certain types of medical care were discussed.

At 6:00 p.m., Dr. Ruth Boynton entertained the council at supper at her home where an evening of fellowship was greatly enjoyed.

#### FINANCIAL REPORT March 14, 1944, to May 29, 1945

RECEIPTS		
Balance brought forward March 14, 1944		
March 14, 1944\$	2,785.00	
Dues collected 1945 (incomplete):		
for 1945—157 schools	1,570.00	
for 1944— 26 schools		
for Proceedings	77.04	
Total Receipts		\$4,692.04
Disbursements		
Secretary's Office:		
Postage	28.50	
Telephone and telegraph	14.37	
Stationery	52.64	
Express	65.95	
Secretarial help		
Secretariar nerp	117.00	
_		\$ 306.46
Publishing Proceedings, 450 copies	795 34	p 300.10
Subscriptions to Journal-Lancet:	, ,,,,,	
1944—193 at \$1.50	289.50	
1945—196 at \$2.00	392.00	
American Council on Education, 1945	10.00	
7 micrean Council on Equication, 1947	10.00	
		1,476.84
Council Meeting Expenses:		
Hotel Nicollet		
President	47.73	
Secretary-Treasurer	145.50	
-		268.43
Section Refunds for 1944:		
Pacific Coast	12.50	
Rocky Mountain	20.00	
Southwestern	12.50	
South Central	32.50	

North Central	35.00
Illinois (no treasurer)	
Michigan	12.50
Indiana	15.00
Ohio	40.00
Mid-Atlantic (no treasurer)	
Southern	. 27.50
New York	45.00
Pennsylvania-New Jersey	42.50
New England	52.50
Mississippi Valley	10.00
**	

Total Refunds \$ 357.50

\$2,409.23 Total Disbursements ...

#### COMMITTEE REPORTS

#### Report of Committee on Health Instruction

Your Committee on Health Instruction met in New York October 1, 2 and 3, 1944. We spent the time conferring with Miss Marjorie L. Craig of the Metropolitan Life Insurance company relative to the publication of a list of source materials for teachers of college hygiene. In accordance with previous arrangements, which were reported at the Cincinnati meeting last year, the Metropolitan Life Insurance company agreed to finance the publication of this booklet.

The time was spent organizing the proposed booklet and selecting the reference material which should be included therein. The objectives of the course were decided to be as follows:

There is a need of a bibliography to give young men and women a ready reference to some of the outstanding scientific publications upon various phases of healthful human living and service. Those interested in health instruction may find here some of the best available materials to make such instruction vital and interesting.

"The interest in health today gives an opportunity to direct young people to reputable source material and general reading covering problems of personal, community, social, mental, and

occupational health.

"If the coming generation is to solve effectively the many vital problems which relate to healthful and vital living in the years that lie ahead, they must have access to the best scientific knowledge this present civilization can give them. In order that the effective use of these available materials may carry over into later life, regular habit of such a procedure is to be desired. The future health of a people depends upon the source material that motivates and activates their social, civic, world and personal living."

The committee decided that there should be definite divisions covering school health, non-communicable diseases, aviation medicine, rehabilitation, tropical medicine, vocational education, industrial hygiene or occupational diseases, and medical eco-

After the committee had completed this work, we decided to circularize the members of the association for suggestions and criticisms.

These have all been organized and the book is now in the process of publication and should be ready for distribution for the beginning of the next school year.

The committee is also working, in the preliminary stage, upon the problem of exemption examinations from beginning courses in health instruction. In the opinion of the committee there is such a varied difference in the past training and ability of college students that there needs to be some means of classifying them so that the college courses on informational hygiene would be of the greatest value to the furtherance of their health training.

Dr. De Kruif has been much interested in this for the past several years and has been making some rather wide experiments in the field. We hope to continue this activity.

A. O. DeWeese, M.D., Chairman MARY DE KRUIF, M.D. B. D. Roberts, M.D. JEANNETTE EVANS, M.D. J. D. FARRIS, M.D.

December, 1945 417

#### Report of Committee on Health Service and Physical Activities

We have no detailed report to make at present. However, the committee members are undertaking the following studies: Dr. Lee W. Milford is making a study of the medical methods of measuring physical fitness, with the idea of finding some simple way of determining physical fitness of a student during his physical examination or at other times. I think in this study, he will also survey the methods being used by the departments of physical education with some comments upon those methods. Dr. Florence Mahoney and Dr. Margaret Bell are making a study of the effects of the war period on the student health services of the country,

I have asked Dr. Deruson of Western Reserve to make further studies with the view in mind of presenting a paper on the problem of the veteran back in college. Dr. Denison was chairman of a group discussion at the annual meeting of the Ohio Student Health Association.

G. T. BLYDENBURGH, M.D., Chairman GEORGE F. PARKER, M.D. MARGARET BELL, M D. LEE W. MILFORD, M.D. W. R. GREENWOOD, M.D. F. N. MARTY, M D.

#### Report of Committee on Organization and Administration

All of us have administrative problems, many of them peculiar to individual institutions, others of more general significance to our whole organization. At the present time there is a problem with which most of our member institutions will soon be faced, if they are not already. That is furnishing health service care to veterans of World War II. Veterans are, and will be in increasing numbers, entering college under the provisions of Public Law 346 (G. I. Bill) and Public Law 16 (Rehabilitation).

At first glance it might seem that veteran-students would be entitled to, and therefore would receive the same health service benefits as any other regularly enrolled student. However, on closer inspection of the facts we find several reasons that would lead us to believe that veterans will present us with several problems not encountered in the care of the usual civilian student.

#### INCREASE IN MEDICAL CARE PER CAPITA

First let us consider the matter from the standpoint of medical care alone. Veterans returning for college work before the end of the war will be largely those who have been discharged for medical reasons. They will therefore require more than av-erage medical attention. Their disabilities will probably also handicap them in the college environment. To illustrate what is meant, the following types of cases have been reported

Psychoneuroses: Psychoneurotic causes for rejection and discharge have been much in the limelight. All of us recognize these as not being entirely foreign to health service practice. But the relative numbers of these cases in proportion to the total number of veteran-students will undoubtedly be much higher than would be the case in an equal number of civilian students. Plans for the care of veterans must include provision for the availability of professionally trained personnel in the field of mental hygiene.

Tuberculosis: At least one health director has been confronted with the problem of caring for arrested, ambulatory cases of tuberculosis. This poses at least two serious threats. If many such veterans return to our campuses there will be a rise in the reported incidence of tuberculosis in colleges. There might be just cause for conflict of opinion between health service authorities and physicians of the Veterans Administration as to whether these cases were actually ready for return to a community as free from tuberculosis as we have reason to believe our member institutions to be.

Another matter regarding these cases of tuberculosis has to do with furnishing pneumothorax. If a student (civilian) were declared fit to enter college in spite of his need for continued pneumothorax it would seem that the health service should feel obliged to furnish this service. If veterans are declared eligible for college training under these circumstances, it may be necessary to require their attendance at a college where this service is available.

Miscellaneous: Among the other disabilities that we may find among veterans in proportions somewhat greater than would occur in an equal number of non-veteran students, the following have been reported: asthma, peptic ulcer, malaria, neuro-muscular abnormalities and diseases of the skeletal system. These offer no special problem except from the standpoint of probable increased per-capita expense to the health service. There will also be increased responsibility placed on the health service with regard to the necessary recommendations for extracurricular activity and excuse from required physical education. as may be indicated.

#### PAYMENT FOR CARE OF VETERANS

The second major administrative problem that health service care of veterans will bring to us is that of financing this care. For the most part our usual civilian student has had the cost of his total college program underwritten by the parent. For the amount of college fees collected, and earmarked for health service care, our different health services have varied greatly in the amount of service given. Very few student health services are on record as providing complete medical care for all illnesses.

Law 346-The G. I. Bill: Veterans will enter college under one or the other of two provisions made by the government. (There is a third law which has to do with benefits for merchant seamen. No information is available to us concerning this) The first of these, the so-called G. I. Bill of Rights, stipulates that an eligible veteran will receive an allowance of funds from which he will be expected to pay his way. This, of course, will include payment for extra medical care over and above that furnished as a regular part of the college health service program. However, for "service connected" disabilities the veteran is entitled to free care from the Veterans Administration. The health service must receive authorization from the Veterans Administration before payment will be allowed for care of such service connected disability. It would seem that some general policy must be predetermined as to what constitutes a service connected disability.

Law 16-Rehabilitation of the Disabled: Veterans may also enter college under Law 16 which has to do with rehabilitation of the disabled. These veterans are entitled to free care, from the Veterans Administration, for any illness or abnormality which interferes with their training. When some such disability occurs for which free care is not given under the usual health service provisions the fact must be reported to the Veterans Administration, probably to the "facility" nearest the respective college community. In this manner authorization may be obtained at rates determined by the Veterans Administration.

#### RECOMMENDATIONS

The committee on organization and administration is of the opinion that difficulties may arise unless there is some definite understanding between the Veterans Administration and our student health services. If the unscrambling of red tape is left until after the fact of an acute emergency arising in a veteranstudent there is the possibility that this student may suffer unnecessarily, or that the financial structure of the health service might be embarrassed. In view of the anticipated problems that may arise in the health service care of increasingly large numbers of veteran-students, the following recommendations are

That the executive council of the American Student Health Association appoint a committee composed of na-tionally known and accepted authorities on student health

That this committee be composed of sufficient personnel that the total will bring together all the varying geographical, social and economic areas in the United States, as these may affect the health service care of veterans.

That this committee be charged with investigating, by dealing directly with the Veterans Administration, problems that will arise in the health service care of veterans, for example:

1. Methods for obtaining service medical records that might be pertinent to the care of a veteran.

- Definition of "service connected disability."
- 3. Devising some structure of liaison with the Veterans Administration so that each health service will know exactly where to appeal for help in the care of acute emergencies, how these contacts are to be made, and what proof of authorization is necessary in order to insure payment for services over and above that furnished as a regular part of the veteran-student's health service program.

MAX L. DURFEE, M.D., Chairman RUTH E. FAIRBANK, M.D. MILDRED E. SCOTT, M.D. WILLIAM G. DONALD, M.D. H. B. POTTER, M.D.

#### Report of Committee on Mental Hygiene

There have been no joint activities of the committee. Prior to cancellation of the annual meeting, I had written to each member with tentative suggestions as to a program based upon the changing mental hygiene load of our health services; how it was being met, and plans for greater adequacy. This was with the increasing "veteran" population in mind.
Individually several of us, I know, have already done consid-

erable work in review of this subject. Dr. Frye has been connected with research of the National Council relative to service connected with mental illnesses. Dr. Small has been dealing with Manhattan Red Cross social service and selective service problems as well as those of one of the few complete psychiatric rehabilitation clinics. I have reviewed our experience with army students and veterans as compared to that of previous civilian populations. Individually, there have been published works and undoubtedly there will be more.

> R. G. HINCKLEY, M.D., Chairman ROBERT FLEMING, M.D. CLEMENTS C. FRY, M.D. S. M. SMALL, M.D. CARL I. WYLER, M.D.

#### Report of the Tuberculosis Committee for the School Year 1943-44

In spite of continued unfavorable conditions in the college health field during the year 1943-44, programs for the control of tuberculosis have been maintained in a very encouraging manner.

Replies to our annual questionnaire were received from 400 institutions. The year previous the number was 399.

Case-finding programs were reported by 282 colleges, an increase of 15 over last year.

Tuberculin testing programs were reported by 199 institutions as compared with 208 a year ago. The Mantoux intradermal method is employed by 125 schools and the Vollmer patch test is in use at 54 schools.

There were 636 new student cases of tuberculosis diagnosed during the year. Of this number, only 14 were accounted for by 114 colleges which provide no routine case-finding program. Eighty cases of tuberculosis were discovered among food handlers, faculty members and other non-student personnel. Student withdrawals from college to undergo treatment for tuberculosis numbered 169. And again worthy of emphasis, we believe, is the large number of students returning to college following a previous diagnosis of tuberculosis-319.

Of special interest, we believe, is the significant increase in the number of students found to have tuberculosis in 1943-44 as compared with the previous year. The enrollment at 267 colleges having programs in 1942-43 was 406,626, while the 282 colleges with programs this year had a total of 286,018 students. This represents a decrease of 120,608 students in attendance at those colleges sponsoring case-finding programs. In 1942-43 there were 522 new cases of tuberculosis reported, a rate of 128.3 cases per 100,000 students. This year, 622 new cases of tuberculosis were diagnosed, a rate of 213.9 per 100,000.

It would seem that this increase probably reflects improvement in the quality and effectiveness of case-finding procedures at many of our colleges. Reports from quite a number of institutions indicate very definite progress in developing more adequate programs of tuberculosis case-finding.

A word of explanation should probably be added with ref-

erence to omission of the committee's annual report from its accustomed place in the April issue of the JOURNAL-LANCET. The statistical department of the National Tuberculosis Association was unable to get the material compiled and into my hands until early in April, whereas March first is the deadline for receiving manuscripts for April publication by the JOURNAL-

H. D. LEES, M.D., Chairman PAUL B. CORNELY, M.D. J. P. RITENOUR, M.D. J. BURNS AMBERSON, M.D. ORVILLE ROGERS, M.D.

#### Report of the Committee on Eye Health

In 1936 Dr. Annette Phelan of the National Society for the Prevention of Blindness came to me and presented evidence showing that the American Student Health Association was neglecting a major health problem, namely, vision conservation of college students.

At the following annual meeting of the association we appointed an eye health committee and secured the active services and cooperation of three eminent ophthalmologists as consultants in our committee: Dr. Benedict, Mayo Clinic; Dr. Gradle,

Chicago; and Dr. Hardy, New York City.

Advisory Committee:

ESMOND R. LONG, M.D.

CHAS. E. LYGHT, M.D.

HENRY C. SWEANY, M.D.

J. A. Myers, M.D.

This committee had many meetings in which we discussed all problems of vision conservation and presented numerous reports and recommendations to the association, and these were published in our association transactions and in several medical journals. The committee studied the psychology of vision, engineering problems of lighting, education, treatment of vision breakdown, and other pertinent details. New methods of vision examination were stressed, a new illuminated chart holder was devised and was used by a considerable number of institutions. A teacher training program was instituted in this field and scholarship aid for these courses was secured through the National Society for the Prevention of Blindness. Illumination of study surfaces was improved in many colleges and universities.

Since the beginning of the war, because of reduced health service personnel the committee has made very little progress. However, it seems to me that at the present time there is a strategic opportunity to revive this program, chiefly because we have available now the improvements in this field that have been the result of the experience of the armed forces.

Their contributions should be studied and applied where appropriate to our college populations.

Numerous recommendations have come to me recently which seem to be valid and should be carefully considered in improving our association program of vision conservation for college students.

R. W. Bradshaw, M.D., Chairman J. H. KLER, M.D. DAN G. STINE, M.D. KATE ZERFOSS, M.D. A. B. DENISON, M.D.

#### Report of the Committee on Ear Health

There will be things to report as a result of studies in Army and Navy especially in submarine, air forces and artillery services. Some preliminary reports were made in Chicago. Dr. Fowler, who spoke at our New York meeting, was there, back from the Pacific area. One of the practical things to stimulate interest was a new movie made at University of Iowa, made primarily for parent-teacher groups and clubs and lay audiences to stimulate interest in the problem of hearing and emphasize steps to be taken. It shows that something can and should be done for those with hearing defects. I do not know how available that is for loan. It is well done and in color.

I think we all miss the meeting. It has been good for us and the work to get together. I know it has always done me a lot of good. We will look forward to the next opportunity.

J. W. Armstrong, M.D., Chairman GRACE HILLER, M.D. J. D. SCHONWALD, M.D. J. W. McCleery, M.D.

DECEMBER, 1945 419

#### Health Service Objectives

(Presidential Address before American Student Health Association Council, May, 1945)

Ralph I. Canuteson, M.D. Lawrence, Kansas

ORE than three years have passed since we gathered in a normal annual meeting. Our meeting a year ago in Cincinnati was held during a period when we could only review past and current problems. We could not with any degree of certainty foresee the problems that now confront us. As this is written, we expect momentarily the termination of the first phase of the present war; military training programs in colleges are depreciating or closing; increasing numbers of veterans are returning to college campuses; and a new variety of responsibilities is accumulating on the existing depleted health service staffs. I shall not attempt more than an outline of matters needing our attention.

Without benefit of an accurate survey, we cannot appraise definitely the present status of health services nor their changed aspects as a result of war conditions. This is a worthy study for our committee on administration. From personal correspondence, we know that numerous health services in smaller and medium sized schools have been compelled to reduce activities to a minimum. Larger schools, and those directly connected with medical schools, have suffered less, although most of them are operating with skeleton staffs.

Here, then, is our first and most urgent objective. We must direct every possible effort toward replenishing our health service staffs with trained, interested personnel as soon as these men and women become available. Only an extreme optimist can foresee the fulfillment of this need until the war is definitely near an end. The few trained persons who have returned to civilian status up to the present time are confronted with such alluring opportunities for public service and personal advancement in other fields that health services cannot expect to compete until the number of such trained personnel is considerably increased.

As we face this conclusion, we also must turn attention toward setting standards of excellence in all phases of health service work, agreeable working conditions and opportunities for advancement that will to some extent compete with other forms of practice. Salary schedules in most health services are eligible for renovation. Too many staff members are so overloaded with routine daily tasks that they have neither opportunity nor energy left for study of the cases they see or for research problems. Opportunities for advanced training in the specialty of health service work are limited. Plans have been discussed in previous meetings to increase these opportunities but little has been done.

It is time we reviewed critically our accomplishments, with emphasis on quality rather than quantity of service rendered, on staffing with only the highest type of personnel, and on providing for them reasonable salaries, opportunities for keeping abreast of their fields, and advancement as they become worthy.

The second big problem before us, I believe, is the direction of every effort to eliminate opportunities for criticism of college health services such as has been leveled at education, the medical and dental professions and other groups, when the high rate of selective service rejections became known. Blame for this situation has been passed about indiscriminately and the data are being used by various groups to further personal interests. No single agency or condition is at fault. A calm study of the data released so far leads to these conclusions: there is a wide difference between selective service standards and physical demands in the two world wars; remarkable progress has been made in certain fields, for example, in tuberculosis control; a large percentage of the physical disabilities could not have been avoided or corrected in our present state of knowledge and in a democratic nation; and the correctible defects are the responsibilities of combined action by various groups, rather than the concerted efforts of any one agency.

Fundamentally there are three major causes of the high incidence of disqualifying physical defects: heredity, over which we have little control; inadequate living conditions and nutrition; and failure or lack of opportunity to use prophylactic and therapeutic medical care.

A smoke screen generated by the ardent proponents of "health through physical education" has obscured the real issue. Not more than 2 per cent of the disqualifying physical defects of selective service registrants could have been corrected by carefully graded programs of physical education. Included in the cases that might have been corrected by proper physical exercise are: some cases of subnormal muscular development, posture cases resulting from poorly developed muscles, some cases of weak feet, and cases of overweight resulting from combination of excess diet and little activity. Aside from this, physical exercise has as its main objectives the development of muscular coordination, special skills and physical endurance, and recreational interests, none of which are causes for rejection of selectees. That physical education is not responsible for uniformly good results in physical development is plainly seen by the large numbers of young men rendered physically unfit for military duty as a result of injuries, particularly to the extremities, incurred in strenuous sports. Rosters of present-day college and professional athletic teams bear witness to this fact.

Our concepts of physical fitness have changed radically in the past four years. The term physical fitness has been loosely adapted to cover not only good health but also motor ability and physical endurance. Col. L. R. Rowntree has stated that "physical fitness is the bodily

state which combines maximum power and efficiency with the minimum time for recovery after exhaustion," and that the attributes essential to success in war and combat are strength, endurance, special agilities, leadership, initiative, emotional stability, and indomitable "will to win."

Peacetime living does not produce wartime "physical fitness." I do not believe we should plan to maintain all young men in the fine state of physical training that will permit them to step into the strenuous activities of combat over night. Every individual should be physically fit for the job to which he aspires. It is unreasonable to presume that it is sound from a health or economic viewpoint to attempt to achieve and maintain a combat level of physical fitness in all young people of selective service age.

Our objectives should be the production and maintenance of an optimum state of structural and functional health, correction of all remediable physical defects, education in the fundamentals of healthful living, and a schedule of graded physical exercises and recreational activities that will have carry-over value and that will fill the needs of civilian pursuits, and serve as a base line for more strenuous training if such becomes necessary.

The part the health service must play in this scheme is first a coordination with other departments concerned with health instruction and physical education, and second, added emphasis on careful, periodic, physical examinations, analysis of the physical defects found, and advice or active participation in the correction of remediable defects. Unless medical ethics and economics change materially in the next few years, there is no reason why health services that are equipped to do so may not take an active part in the correction of remediable defects when the student's financial status or available medical facilities in his home community do not permit him to obtain needed help.

Emphasis needs to be placed on special health factors -factors that may not be immediate causes of disability but which will impair physical efficiency if neglected. In this group are included renewed attention to tuberculosis control among students, faculty and other associated groups; more careful hearing examinations and search or causes of failing hearing; more use of careful eye examinations including refractions when indicated, and elimination of eye health hazards; dental examinations and opportunities for early care of defective teeth; analysis of the cases of organic heart disease and outlining programs that will offer the student prospects of a normal, useful life; study of the early cases of hypertension and kidney disease; development of practical function tests that can readily be incorporated in the routine examinations; and wider use of data accumulated in the day's work for the study of health problems. It seems almost certain that in health service work we must see almost daily the precursory signs and symptoms of later degenerative diseases, but without prolonged followup we cannot recognize these signals.

In developing the strictly medical aspects of our work, we must not overlook the importance of health education. Statewide studies have been undertaken to determine the needs for health education and how to fill them. Kansas is in the process of such a study now under the direction of Prof. C. E. Turner. An ambitious program is under way to correlate the activities of groups interested in health education. Dr. Boynton will represent us at a meeting for this purpose to be held in New York late in May.

In the schools having the department of physical education and the health service separate, there is a great need for closer cooperation. Physical education, to be successful, must be adapted to the physical capacity of the student, which requires periodic physical examinations of all students engaged in physical exercise. In return the health service can expect help where corrective physical exercises are needed for special students.

A third problem of no little importance is the health of veterans returning to college. At the present time, practically all of these men are disabled for active duty. In other words, almost 100 per cent have physical or emotional problems of importance, whereas the usual run of students presenting such problems is less than 25 per cent. Many of these veterans have chronic illnesses; still more have emotional problems. It is doubtful if many of them have had time to adjust to civilian ways of living before coming back to school, from which most of them have been separated for periods of from one to eight or ten years. This entire subject is one requiring discussion at this meeting; undoubtedly the matter can be adjusted in most schools so that the veteran will receive every attention without its imposing an undue burden on the younger students who contribute equally to the support of health services. In any event, although the problem may be a major one in the next few months, it will be temporary.

I have mentioned rather sketchily what seem to me to be the problems needing our immediate attention. Many more might be listed, for, since the organization in 1906 of the first real health services as we recognize them, our departments have been given more and more responsibility for the health of college students. In the twenty-five years since the organization of our association we have made steady progress. War conditions have caused interruptions of some of our activities, but they also have emphasized the need for renewed efforts and leadership by our association in the field of student health.

DECEMBER, 1945

# College Health Service to Civilians and Military Students\*

Melbourne Murphy, M.S. P.H. Warren Forsythe, M.D. , Ann Arbor, Michigan

PERSONAL health service to students has been the predominant feature of the University of Michigan's student health program. This service was extended, on a contract basis, to members of the Atmy, Navy, and Marine Corps stationed on the campus. Service to these groups was basically as for civilian students, with such additions as were required by contracts; but the strictly routine services such as examinations, immunizations, and official record-keeping were not included.

The accompanying table and discussions compare experience with civilian and service students for the year July, 1943, to July, 1944. The Navy and Marine Corps groups were seen at sick call by a naval medical officer and those needing further attention were referred to the Student Health Service. Army sick call was attended by health service physicians for the most part. An army medical officer and small staff were present to handle routine services and to care for duties not under contract.

The civilian population was relatively stable for the entire year. The armed service personnel was figured on the average total strength per month since various groups left school at odd times as their training periods ended. No attempt has been made to separate age groups in the comparison, but it is known that the naval personnel had a lower average than that of the army group.

All clinical data except for numbers attending sick call were obtained from health service records.

Population figures showing total individuals enrolled for all terms indicate the aggregate net enrollment for civilians and service groups. The average civilian enrollment for each of the four-month fall and spring terms was 1754 for men and 3728 for women. The average for service groups was the same for student years. To make rates comparable and applicable to typical social situation, student years were determined theoretically in terms of twelve months continuous residence per student. For the Army and Navy there was considerable change in persons and for the separate terms many of the same individual civilians were recounted in the usual enrollment figures.

The figures for clinic calls include each visit by the patient to the various units and clinics in the building. In the Army and Navy figures the number of clinic calls includes the figures for sick call plus referrals to the various departments.

The figures for new patients in the civilian group refer to the individual persons who came to the clinic one or more times; 75 per cent of those enrolled during the year. For the Army the figures include all individuals \*Read before Council of the American Student Health Association, May, 1943

who attended sick call during the year; 67 per cent of those enrolled. For the Navy the figures represent the individual patients who attended the clinic on referral from sick call; 44 per cent of those enrolled during the year. No data are available for the individual patients attending navy sick call.

A room call means that a physician went either to the patient's room or to the health service after regular clnic hours (8 to 5 except Saturday, 8 to 12, and Sunday, 11 to 12), to see a non-hospitalized case. The lower rate for the Army may be attributed to the fact that sick call rules are rigid and are followed. The Navy rate was higher probably due to the fact that the Navy physical education program lasted later into the afternoon with the result that many injuries were treated after closing hours and were recorded as room calls.

Hospital bed patients were those sent to the University hospital for care other than that available at the health service infirmary. The rate was higher for the service groups than for civilians, owing chiefly to the higher fracture rate among the former and the higher rate for contagions.

Infirmary patients were given bed care at the health service and again the rate was higher for the service groups. A higher incidence of upper respiratory infections among the military people partly accounted for this. Another reason is that the military authorities required their patients to be hospitalized if not fit for duty.

Physical therapy rates were again a great deal higher in the case of the military group. A more strenuous athletic program and a higher age level for the Army probably account in part for the increase.

Visits to the allergy clinic show a higher rate for civilians. A large proportion of these visits were for hay fever treatments. The lower rate for the naval group indicates selective screening on entrance physical examinations.

X-ray examinations show a higher rate for the Army than for the Navy or civilians. The higher age level with more chronic illnesses and requests for assurance probably accounts for this.

Mental hygiene interviews are very much less for the service groups. The medical officers did not promote this service. The figures for civilians do not include interviews with returning veteran prospective students.

Service men were given preference in the limited dental service available.

The average civilian net cost includes estimates of total expense to the university. It covers the very generous service provided with deductions of service earnings for

A Year's Experience with Civilian and Service Groups --- General Items --- July 1943 to July 1944

	Civi Men	lian Women	Total	Army	Navy	Mer	Civilian	Rates/1000 n Total	Student 'Army	Years Navy
Population—Total Individuals Enrolled (all terms)	3,520	5,920	9,440	4,073	2,430					
Population-Student Years	2,051	2,707	4,758	1,145	1,460				•	
Clinic Calls	,	-,, -,	73,906	23,969	24,294			15,532	20,933	16,639
Sick Calls only	,		, ,	16,945	*14,761		,			
New Patients			7,073	2,746	1,070					
Calls to student rooms			954	162	400			200	141	274
Infirmary Patients	534	746	1,280	426	633	260	275	269	372	433
Other Hospital Bed Patients'	43	61	104	39	56	21	22	22	34	38
Physical Therapy Treatments			3,297	4,563	2,810		_	693	3.985	1,925
Visits to Allergy Clinic			17,536	1,421	155			3,685	1,241	106
X-ray Exams at Health Service			\$2,115	868	606			444	758	415
Mental Hygiene Interviews		•	4,052	202	158			852	176	108
Students Interviewed in			-,						•	
Mental Hygiene Unit	336	548	884	80	57	164	202	185	70	39
Dental Clinic Visits			3,541	2,055	1,644			744	1,795	1,126
Dental Clinic Patients			1,550	417	356					
Refractions			906	160	144			190	140	99
Deaths, Total	1		1	0	0			.2	0	0
Costs per Month			\$2.61	\$3.42	\$3.36		•			
Appendicitis, acute	31	34	65	13	26	15	12	14	11	18
Contagious (all)	24	59	83	28	53	12	22	17	24	36
Fractures	28	41	69	41	67	14	15	14	36	46
Infectious Mononucleosis	30	47	77	20	30	15	17	16	17	20
Otology Operations at H. S.	39	36`	75	11	6	19		16	10	4
Pneumonia	43	32	75	. 50	76	21	12	16	44	52

<sup>\*</sup> Held by naval medical officer at quarters.

‡ Does not include entrance physical examinations.

some essentially elective services. Upon this base, gross costs of other contractual services for military personnel are added and total about \$.50 over the amount received from the Army and Navy.

The very significant increase in pneumonia for the service groups occurred during the fall months and has no certain explanation. The weather was cold and the daily out-of-doors program did appear to result in excessive body chilling. The increase in fractures may be explained by differences in the required exercise program.

#### SUMMARY

A year's experience at the University of Michigan Health Service shows that more medical care was required for military students than for civilians. This greater requirement was probably the result of closer supervision, required hospitalization, rougher exercise, closer quarters, and more exposure.

#### X.RAY WAS DISCOVERED 50 YEARS AGO

The roentgenologist is the magician of modern medicine. He is the modern Aladdin, the genie of whose magic bottle is the mysterious x-ray. Truly he looks into the crystal and predicts the future. By his wizardry we may look at the beating heart, the stone in the kidney, the ulcer crater, and the distorted physiology of malignancy.

The radiologist will show you, in stereoscopic projection, the mysteries of tuberculosis: the cavity, the infiltration of infection, the healed and calcified battle-ground. He will point out the amount of necrosis in bone or the extent of the reparative process. He will demonstrate to the surgeon the results of his adjustments of fractures and will predict what the future should bring. One of the most dramatic phases of all surgery is to us the setting of a fracture under the fluoroscope.

Within his darkened cave this modern Merlin conjures up more wonders than all the ancient necromancers. He will make visible the passage of opaque fluid through the entire gastrointestinal tract and indicate any variance from the normal. He will locate with surprising accuracy hidden foreign bodies and will treat, with the magic of his ray, skin lesions and deep-lying malignant processes.

How many things of supreme importance in our daily medical lives we take for granted. Scarcely ever do we stop and look back over the shoulder to see how far we have come along the highway of progress. It is wise, now and again, to give thought to the things we of this Age of Wonders accept as commonplace. Two things of today are to us of absorbing interest: the perpetual miracle of a radio, the mystery of the x-ray.

Let us pause to pay tribute to this tireless group of scientists, the roentgenologists, who stand beside the physician and surgeon and give all-out assistance in the problems of disease. These men work at great personal risk, but you will never hear one of them admit it. They are the real magicians of modern medicine; they deal in scientific sorcery.—Bernard McDougall, M.D.\*

\*Published originally as an editorial in the Detroit Medical News, May 12, 1941, and reprinted, as issued by the American College of Radiology, in commemoration of the 50th anniversary of the discovery of x-ray. DECEMBER, 1945 423

# Hypofunction of the Lacrimal Gland and the Sjögren Syndrome\*

Andrew de Roetth, M.D. Spokane, Washington

ORMAL function of the lactimal gland is necessary to keep the surface of the cornea and conjunctival moist and lubricated and to assure the cleaning of the conjunctival sac through the more or less steady flow of tears toward the tear sac and nasal cavity. The chemical composition and osmotic pressure of tears probably play a rôle in the metabolism of the cornea.

It is difficult to determine the normal function of the lactimal gland, for, as in most bodily functions, the normal varies widely. Schiemer 1 estimated the output of tears from one half to two thirds of a gram a day when the lactimal gland is not subjected to stimulation. He devised a simple method to determine the quantitative function of the gland. At one end of a strip of blotting paper 35 mm. long and 5 mm. wide a piece 5 mm. long is bent, the corners of this piece are cut off, and the bent piece is hooked over the margin of the lower lid and allowed to remain there for five minutes. If the whole strip becomes moist within five minutes, this time is marked. If not, the portion that became wet is measured. The first 5 mm., the part of the strip that lies on the conjunctiva, is disregarded.

This method is not perfect, because it does not measure directly the function of the lacrimal gland but is based on the sensitivity and irritability of the comea and conjunctiva to the blotting paper and the response of the lacrimal gland to this irritation. Besides, blotting papers have different textures, surfaces, and absorptive capacity. I? have tested a dozen different blotting and filter papers. Whatman No. 41 filter paper, "double acid washed, very rapid, soft with open texture," proved to be the best among the papers tried. It is not hard, has a very fine velvery surface that adheres well to the tarsal conjunctiva, and has good absorptive capacity. I proposed that strips made of this paper be used in making the lacrimation test, thus introducing one constant factor and making possible the comparison of results obtained by different investigators.

Apart from the congestion of the conjunctiva caused by weeping, the eye does not suffer from the overproduction of tears. I was able to collect ½ cc. of tear fluid from one eye in two to three minutes through reflex stimulation of the lacrimal gland by smelling ammonia. How low can the lacrimal production be before the eye suffers? According to Schirmer, everyone who has a lacrimation of less than 15 mm. in five minutes may be suspected of a paresis of the excitolactimal fibers, and the lacrimal gland and its innervation can be considered normal if the moisture amounts to more than 15 mm. in five minutes. However, this standard does not seem to be entirely correct. I examined 162 persons of all age

\*Read before the Montana Academy of Oto-Ophthalmology, July 8, 1945. groups, mostly refraction cases, who had no trouble that could have originated from the hypofunction of the lacrimal gland. The production of tears decreases with age, at least up to the sixth decade. Twenty-seven out of 78—that is, one third of the individuals older than forty years—had a lacrimation of 15 mm. or less, which is considered pathological by Schirmer. In my experience a production of 4 mm. or less of tear fluid by the Schirmer method is usually accompanied by at least subjective symptoms. When the production is between 4 and 10 mm., trouble may or may not be present. It is exceptional to find symptoms of lacrimal deficiency when more than 10 mm. are produced.

There are three grades of severity of corneal and conjunctival changes due to hypofunction of the lacrimal gland. However, it must be stressed that the severity of the clinical picture does not exactly parallel the rate of tear production.

The most marked clinical picture has been known for many years as filamentary keratitis. This rare condition is a textbook disease which requires little discussion. It is characterized by epithelial filaments, half a millimeter to several millimeters long, on the cornea, with a knob at the free end. This painful condition occurs not only with hypofunction of the lacrimal gland, but also in dendritic ketatitis and corneal abrasion, and, very rarely, after cataract operation.

The second clinical picture due to diminished lacrimal secretion is called keratoconjunctivitis sicca, and has been treated in the American literature in the papers of Beetham,3 Bruce,4 Gifford, Puntenney and Bellows.5 The objective ocular symptoms are light to moderate congestion of the bulbar conjunctiva and a stringy, ropy mucoid discharge. In marked cases the lid conjunctiva is red and swollen, even velvety. There are tiny round gray dots in the corneal epithelium and punctiform staining with rose bengale or fluorescein, more marked in the lower half of the cornea. The subjective ocular symptoms are moderate photophobia, burning, grittiness, and difficulty in reading, especially by electric light. Decreased vision may occur when the small epithelial defects or infiltrations are in the pupillary area. There is a moderate hypesthesia of the cornea. Only seldom does the patient complain of dryness and difficulty in opening the eye in the morning. The Schirmer test shows 0-3-6 mm. in five minutes.

Sjögren <sup>6</sup> considered these eye manifestations as one of a syndrome. Associated symptoms of this Sjögren syndrome are dryness of the mouth, nose, and larynx, due to decreased function of the salvary glands. Such patients cannor eat toast or other dry food. About <sup>50</sup> per cent have chronic arthritis (Bruce), mostly of the chronic infectious type, but also of the endocrine (Umber) type.

In a few cases, hypochromic and also pernicious anemia was observed and an increased sedimentation rate was found. Dental caries is marked, but the majority of patients have artificial dentures. In a few patients subfebrile temperature was reported. The most tormenting symptoms are the pricking and burning of the eye, and, when present, the disabling chronic arthritis.

The mildest form of the lacrimal hypofunction, which I<sup>2</sup> described in 1941, is characterized by fatigue or heaviness of the eye and difficulty in reading, especially by artificial light. Some patients say their eyes do not open freely in the morning and prick when first opened. Only rarely is there dryness of the eyes. A dry, warm, dusty season aggravates the condition. There is little or no dry secretion in the inner angle. Since keratitis is not present, this condition cannot be classed with keratitis sicca. Only occasionally are there a few tiny dots staining with fluorescein or a fine epithelial edema. The bulbar conjunctiva may be slightly congested or normal, as is the cornea. When the lid is pulled from the eyeball, it adheres just a bit more than in a normal eye. The Schirmer test is 2-10 mm.; in one case it was 15 mm. The accompanying symptoms are moderately dry mouth (though the mouth is usually normal), dental caries or loss of most of the teeth, and a slight chronic arthritis in the joints of the fingers. The same associated symptoms are found in the Sjögren syndrome, in which they are more marked.

The frequency of the three clinical forms is shown in the following figures. Of 6200 eye patients I had three cases of filamentary keratitis, seven cases of keratitis sicca, and twenty-one cases of mild hypofunction, with a frequency for all grades of lacrimal hypofunction of one in 200. In filamentary keratitis the Schirmer test was 0-3, in keratitis sicca 2-8, in the mild form, 2-15.

#### PATHOGENESIS

The principal factor in the pathogenesis of all three forms is diminished lacrimal secretion. This decrease may be brought about by congenital absence of the gland, surgical removal of the gland, destruction of the gland by radiation, the presence of toxins, and by some less clearly defined causes connected with endocrine dysfunction.

Surgical removal occurs in case of tumor of the lacrimal gland or of the temporal portion of the lid and conjunctiva, when severing the ducts of the lacrimal gland is unavoidable. The following case will illustrate. Mrs. M. L., aged 56, had a basal cell carcinoma involving the temporal canthus and the temporal fourth of the upper and lower lids of the left eye. About a third of both lids had to be removed before plastic repair. The cosmetic result was good, but the eye was irritated and sandy and had a ropy secretion and numerous small epithelial defects of the cornea. There was no tear production whatever, because the ducts of the gland were severed when the tumor was excised. The condition was improved by closure of the lacrimal puncta. Partial removal of the lacrimal gland, an operation formerly used to relieve the epiphora tollowing extirpation of the tear sac, is known to have caused keratitis sicca in a few instances.

Destruction of the lacrimal gland by radiation was observed in the case of a woman, aged 72, who suffered x-ray burns when she had x-ray treatment of the face to remove excessive hair growth. When I saw her, half a year after the treatment, the skin of the temporal third of both the left upper and lower lids and of the region of the outer canthus and temporal region was atrophic, with marked telangiectasia. The temporal half of the bulbar conjunctiva was in the same condition. The eye was dry, burning, and painful, and affected with filamentary keratitis. The Schirmer test was 1 mm. The other eye was normal.

Probably toxins can damage the lacrimal gland. One must suppose this to be true in Bruce's case of a boy, aged 17, who had sore eyes following a severe attack of scarlet fever. The corneas stained irregularly and superficially, the conjunctivas were congested, and the Schirmer test was 0.

In most cases the cause of lacrimal hypofunction is not so clear. In what I should call the senile-endocrine type, with an added, unknown, perhaps toxic factor, the great majority of patients are women. Of 31 such patients coming to me, only two were elderly men. The women are usually in the postclimacteric age. If they are younger, there is some pathology of the ovaries, e. g., cystic ovaries, oophoritis, or radiation therapy, or one or both ovaries have been removed. I had three such cases. Several of the elderly women too had had a disease or surgery of the ovaries several years before the onset of eye manifestation. Several authors, e. g., Fried and Goldzieher,7 have lately mentioned this endocrine factor in connection with keratoconjunctivitis sicca. Hollos, in his unpublished experiments, got dry corneas after extirpation of the lacrimal gland in rabbits, but only when the ovaries were also removed.

However, advanced age and absence of ovarian function seem to be only a predisposing factor. There must be a further factor, which may be toxic. Sjögren maintains that the disintegration of the parenchymal cells of the lacrimal and salivary glands, the chronic arthritis, and the high sedimentation rate point to a chronic infection, but he admits that this infection may be of secondary importance to the decreased function of the ovaries.

#### PATHOLOGY

In keratoconjunctivitis sicca the early pathological changes are hypdropic degeneration of the epithelium and swelling and granular disintegration of the elastic fibers. Later, groups of mononuclear cells, mostly lymphocytes, are found. However, the important primary change takes place in the lacrimal gland in the form of an "adenopathy leading to atrophy," as Sjögren terms it. It is a primary noninflammatory disorganization of the tubules, an atrophy of the protoplasm of the parenchymal cells, leaving the nucleus of the cell intact. Secondary occurrences are round cell infiltration and the proliferation of connective tissue, which always occurs in parenchymatous organs when the parenchyma is gone. Sjögren found similar changes in other salivary glands. In filamentary keratitis the pathological changes are the same. In the mild form of hypofunction no pathological

examination has yet been done, but there is reason to believe that such an examination would reveal the earliest stage of the same process, i. e., atrophy of the parenchymal cells of the lacrimal gland.

THERAPY

As long as the etiology of this disease is unknown, the most effective way to combat the eye manifestations is to provide for lubrication by local application substituting for the lacrimal fluid. Solutions for this purpose have been suggested by various authors. They include solutions of NaCl, 1 per cent; NaCl, 1 per cent and Na-HCO3, 1/3 per cent; sodium salicylate, 2 per cent; asparagine, 1 per cent with boric acid 1 per cent; liquid petrolatum; egg albumin; fibrolysin; lysozyme. The latest and probably best solution is Gifford's formula: gelatin, 0.3; chlorobutanol, 0.3; Locke's solution, 30.00.

However, none of these fluids corresponds to the physiological tear fluid. The best method is to conserve the small amount of tears produced in affected eyes by occlusion of the puncta, as advocated by Beetham in 1935. I agree with all authors who have employed it that this is by far the best procedure. The hear or diathermic destruction of the epithelial lining of all four canaliculi has to be complete to get an immediate and dramatic

result.

Other therapeutic experiments conducted with the purpose of acting on the lacrimal gland through systemic application of physostigmine, pilocarpine, acetylcholine, liver, iron, arsenic, and further fever therapy, and also the intended stimulation of the lacrimal gland by roentgen rays, were of no avail. So also was the administration of vitamins, especially vitamin A, used because of a certain resemblance among keratomalacia, xerophthalmia due to vitamin A deficiency, and keratitis sicca.

The ideal treatment would be one counteracting the endocrine disturbance and the toxic factor. For this purpose the prolonged use of ovarian extract is advisable. With this therapy several of my patients have subjectively improved, although the Schirmer test has not re-

vealed an increased tear production. I have never tried testosterone in the few male patients I saw with keratitis sicca.

To eliminate the toxic factor, it is advisable to remove infected foci, though there is usually no indication of such foci. In a severe case of keratoconjunctivitis sicca I gave the patient penicillin and theelin at the same time. The patient was entirely relieved of the grittiness of the eyes, and they did not feel dry, though the Schirmer test did not reveal increased tear production.

#### Summary

My purpose is to call attention to the diseases due to hypofunction of the lacrimal gland, especially to the scarcely known mildest form. Keratitis filamentosa and keratoconjunctivitis sicca are not common but are fairly easy to recognize from the patient's complaint, the eye symptoms, and other associated symptoms, e. g., dryness of the nose, mouth, larynx, chronic arthritis, and high sedimentation rate, usually among women in the postclimacteric age. The mild form is harder to recognize because of the vagueness of the patient's, complaints and usually complete lack of objective symptoms, except for the positive Schirmer test. The cause of the disease is not entirely clear, but endocrine disturbances, probably decreased function of the ovary combined with a toxic factor, do play a rôle. Only in a few cases is the etiology clear cut, namely, when the lacrimal gland is removed or destroyed. The most effective therapy consists in occlusion of the puncta. In mild cases, administration of ovarian extract and the frequent use of sodium chloride and sodium hydrocarbonate drops or Gifford's solution are effective.

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#### The University of Minnesota Commended by the United States Army for the Work of the · Twenty-sixth General Hospital

President James L. Morrill of the University of Minnesota is in receipt of a letter from General Joseph T. McNarney of the United States Army, commending the service of the Twenty-sixth General Hospital. General McNarney's letter reads as follows.

> HEADOUARTERS MEDITERRANEAN THEATRE OF OPERATIONS UNITED STATES ARMY APO 512

> > October 16, 1945

Subject: Commendation

To: The President, University of Minnesota, Minneapolis

With the mactivation of the Twenty-sixth General Hospital after long overseas service in this command, it is suitable to extend to the University of Minnesota and the Faculty of the Medical School, apprecia-tion and commendation of the distinguished service of this affiliated unit.

The high standard of professional service maintained by the hospital has reflected great credit on the medical officers and nurses as individuals. This credit may properly be shared by the University of Minnesota, their sponsor.

JOSEPH T McNARNEY General, USA Commanding

President Morrill's letter in reply reads as follows.

UNIVERSITY OF MINNESOTA Minneapolis 14

OFFICE OF THE PRESIDENT October 30, 1945

General Joseph T. McNarney, USA Hdq. Mediterranean Theatre of Operations APO 512, c/o Postmaster, New York, New York Dear General McNarney:

The University of Minnesota appreciates the commendation of the United States Army, Headquarters Mediterranean Theatre of Operations, of the Twentysixth General Hospital.

It is gratifying for the University of Minnesota to know that the members of its staff contributed to this vital phase of the war, and it shares with those mem-bers in humble acknowledgment of the generous credit you confer.

Sincerely, J. L. Morrill, President

# Diagnosis and Postsanatorium Care in Pulmonary Tuberculosis\*

W. L. Meyer, M.D.† Sanator, South Dakota

ERHAPS it is presumptuous for me to attempt to tell you, who have been in the practice of medicine longer than I, anything about a disease as common as tuberculosis. However, I have found that a review of a disease, even of one with which we are familiar, occasionally is of value and that is my excuse for being here. I would like to remind you briefly of two cases illustrating this point and then review the diagnosis and suggest some postsanatorium treatment.

In the first case, a woman came to the sanatorium after having had a cough for an extended period of time. She had consulted her physician because of this cough and had even suggested the possibility of an active tuberculosis. He ignored this possibility, probably because he was too familiar with the family history and was reluctant to consider that as a possible diagnosis. Having received no benefit from this doctor's treatment after several months, she consulted another physician and a diagnosis of tuberculosis was made at once. When she was admitted to the sanatorium her tuberculosis was very far advanced and it was difficult to give her any relief.

In the other case, a patient had consulted a reputable doctor for much the same complaint and had requested a sputum examination. This doctor, likewise, was reluctant to consider such a possibility and did not secure the sputum for examination. It was only after several months that she consulted another physician and a sputum sample was secured. This sputum sample did contain tubercle bacilli and the patient was admitted to the sanatorium.

It is my desire to refer patients back to their original family physicians after they are ready to leave the sanatorium, but it is very difficult, if not impossible, in such cases, because they have absolutely no confidence in them. Both of these cases are those of reputable men in the state of South Dakota.

I wish only to review very briefly the diagnosis of tuberculosis before passing on to postsanatorium treatment. In the diagnosis of tuberculosis the Mantoux test is very reliable. At the present time the P.P.D. test is used perhaps more than any other. This consists of the injection of P.P.D. material in the first strength. The test is read forty-eight hours later. If the original test is negative, it must be followed up with a second strength P.P.D. If this strength is likewise negative in forty-eight hours, the test is considered negative. A negative test means that the patient has not had a tuberculosis or, as may happen in very rare instances, the patient may have

\*Read before the Yankton District Medical Meeting, September 20, 1945.

†Supt. South Dakota State Sanatorium, Sanator, South Dakota.

healed a tuberculosis by calcification so that all tubercle bacilli are killed, or the patient may have a very far advanced, very active disease, in which case the test occasionally can be negative. A positive test merely means that at some time in the past the patient has had an active tuberculosis. It will not indicate whether the disease is active nor in what part of the body it is located. The patch test is gaining popularity at this time and is considered almost as reliable as the double strength P.P.D.

A clinical history is essential in a diagnosis of pulmonary tuberculosis—a procedure I am sure is familiar to all of you. I wish, however, to remind you that only one or two of these symptoms may be present, and that a patient can have an active disease that is practically asymptomatic. Our old classic symptoms of pulmonary tuberculosis consist of afternoon fever, loss of weight, loss of strength, night sweats, cough, hemoptysis and dyspnea, usually with an increased pulse rate. Any or all of these symptoms, either alone or in combination with others, suggest a very careful examination for tuberculosis; particularly any cough which persists for a month demands an x-ray of the chest.

Physical examination will vary greatly, depending on the location and extent of the lesion. Perhaps the most important point that I should make, with regard to physical examination, is that a negative examination of the chest is of no value, just as a negative sputum sample is of no value. Only positive findings can be relied upon. It is possible to have extensive disease with no physical findings. If any case presents a history that is at all suggestive of tuberculosis, it is not possible to rule this out without either a Mantoux or an x-ray.

For x-ray examination the 14"x 17" stereo plate is the one to be desired. The 14"x 17" single plate is fairly reliable; however, not as accurate as the 14"x 17" stereo. The miniature film, be it 35 mm., 70 mm., or the 4"x 5" plate, is used mainly for mass survey work and is not of great value as far as the diagnosis of the single case of tuberculosis is concerned.

Laboratory Examination—Sputum Examination. The direct smear is comparatively unreliable, unless the organisms are found. In case the organisms are not found, concentrate examination of the sputum should be made. This is much more reliable than the direct smear. The culture is likewise more reliable than concentrate examination and of course the guinea pig inoculation is of still more value. I must remind you that a single negative sputum is not reliable. It is likewise possible that a patient with a far advanced tuberculosis, even with December, 1945 427

cavity formation, may have a consistently negative sputum. The blood count is not a reliable diagnostic aid. It is quite possible for patients to have a far advanced tuberculosis with an essentially normal blood count, particularly insofar as the red and hemoglobin are concerned. There is usually an increased white count with some disturbance in the differential. Usually the monocyte count is increased. However, this likewise may be the case in other conditions, so it is impossible to use it as a differential diagnostic base. Sedimentation rate is usually increased and may run as high as 140 or 150.

Lack of time necessarily limits extended discussion of differential diagnosis. I wish only briefly to mention some of the most common conditions to be considered. On differential, atypical pneumonias must be considered. It is rather difficult to rule this out, particularly in the case of an active tuberculosis with a negative sputum. However, an atypical pneumonia is more likely to be located in the lower portion of the lung field. Most forms of atypical pneumonia that persist for an extended period of time, particularly those lasting several months, are very difficult to diagnose from a tuberculosis with a negative sputum. A bronchiectasis is usually located in the lower portion of the lung field near the mediastinum and can be eliminated by lipiodol injections. Tumors and cysts in the lungs I wish to classify in one group. Of course the metastatic malignant tumors, particularly if they are multiple, are usually rather easy to diagnose from a tuberculosis. The occasional gelatinous tuberculous infiltrate, if a solitary nodule in the parenchyma of the lung, may resemble closely a solitary metastatic nodule. Usually, however, the original malignant area may be detected in some other portion of the body. A bronchogenic type of malignancy usually differs quite markedly on the x-ray from a tuberculous infiltration. Non-malignant tumors are usually solitary and present a homogenous appearance which is quite easily differentiated from a tuberculosis. Boeck's Sarcoid presents an appearance somewhat resembling tuberculosis and is usually in the mid-portion of the lung field. Sputum is negative and the Mantoux is likewise negative. A bronchitis usually presents no radiographic findings except for slightly increased markings and is usually in the lower portion of the lung field. Cardiac involvement shows a marked increase in the transverse diameter of the heart. The condition is usually in the lower portion of the lung field and usually bilaterally symmetrical. The fungus infections are comparatively rare in this part of the country, but must be given consideration. The fungus usually is found easily on sputum examination. The various types of pneumonocosis rarely are seen in this part of the country. However, they must be given consideration and are frequently seen in mining communities.

Postsanatorium Treatment. It is our desire to keep all patients at the sanatorium until they have been on at least two hours' walking exercise for a period of two months. Their sputum must be consistently negative and the x-ray must show regression of the lesions. The patient must be afebrile. The type of treatment they re-

ceive at home will depend entirely on the type of treatment they have received at the sanatorium. The patient who has not received any collapse therapy must receive the following treatment at home. Rest hours, usually two hours in the morning and two hours in the afternoon: this rule must be observed strictly and the hours must be the same hours each day. It is very important to have the patient retire at the same time each night, preferably about nine or nine-thirty. If this rule is broken. with the patient staying up until midnight some nights, it is impossible to regain what has been lost, even though the patient were to stay in bed the entire next day. With the patient on only two hours' walking exercise, no work is to be attempted. With the average patient it is usually possible to increase the walking exercise about ten minutes a week. Sputum and x-ray examinations should be secured at three-month intervals. When a patient with pneumothorax is discharged from the sanatorium the above treatment will be supplemented by pneumothorax refills at periodic intervals. The length of time between refills and the amount of air at each refill will depend entirely on the individual patient. This will vary depending on the rate at which he absorbs the air and to a certain extent on his activity. Some patients require refills with only a few cubic centimeters at monthly intervals, whereas other patients will require refills up to as high as 600 cc. every week. This can be determined only by close observation of the patient and fluoroscopic examination or x-rays at frequent intervals. A patient with a phrenic, thoracoplasty, or a paraffin pack requires the same postsanatorium treatment as the patient without any collapse therapy. A patient with an extrapleural pneumothorax requires the same care as the patient with an intrapleural pneumothorax.

I wish to discuss very briefly our proposed plan for mass survey work in the state of South Dakota. A contract has been let for the purchase of a 70 mm. portable x-ray to be used for the survey of everyone in the state. An x-ray technician and two clerks will be sent with this unit. Any resident of the state is eligible to have an x-ray taken by this unit. There will be no charge. The x-ray film will be returned to the sanatorium for interpretation and, if there is evidence of pathology, a report will be forwarded to the local physician. This report will indicate merely that the patient has some type of chest disease and a complete check-up should be had. The patient likewise will be notified that he should report to his local physician for an examination. We feel that at the time of this examination by the local physician a 14"x 17" plate is mandatory, along with a complete physical examination. The local physician is requested to report back to the State Board of Health the findings of the clinical examination and is requested to forward the 14"x 17" plate to the sanatorium for interpretation.

It is probable that this unit will be delivered about the first of the year. It will be financed by funds that have been allocated by the federal government for the control of tuberculosis. Funds will be placed in the hands of the State Board of Health for use in this state.

# The Prevention of Crystallization and Stone Formation During Constant Urinary Drainage\*

Major Howard I. Suby, M.C., A.U.S.

ONSTANT urinary drainage is frequently required for long periods of time in the care of war wounds of the urinary tract and spinal cord. Whether this is accomplished by means of an inlying urethral catheter or a suprapubic tube, a principal problem is the partial or complete blockage of the catheter or rubber tubing due to crystallization of the urine. The obstructing sediment is caused by urinary infection with urea-splitting organisms and concomitant alkalinization of the urine. Unless the crystals are mechanically or chemically removed, complete or partial obstruction with leakage of urine around the catheter occurs. Not infrequently, bladder calculi develop.

Frequent changing of catheter and tubing and irrigating the drainage system with the ordinary solutions (saline, boric, and potassium permanganate, etc.) have not proved satisfactory in managing this problem. Frequent changing of catheter is troublesome and painful and sometimes is dangerous or contraindicated, as in injuries of the urethra. Moreover, the ordinary irrigating solutions are relatively ineffective in preventing crystallization.

The use of solution G, an irrigating fluid developed to dissolve urinary calculi, has proved so satisfactory in preventing crystallization of the urine during constant urinary drainage that it seems desirable to call attention to its use for this purpose. This solution is a solvent for calcium phosphate and calcium carbonate and yet is relatively nonirritating to the urinary tract. The formula is:

#### FORMULA FOR SOLUTION G

Cîtric Acid (monohydrate)	32,25 G,
Magnesium Oxide (anhydrate)	. 3.84 G.
Sodium Carbonate (anhydrous)	4.37 G.
Warer as ad	1000 cc.

The most practical method of using solution G will naturally depend upon the case and the type of drainage employed. In patients with "cord bladders" on tidal drainage, solution G should be used alternately with sterile water, boric acid solution, or saline. The percentage of total time on solution G should be determined by the amount of crystallization and urinary infection. In patients with relatively clear urine, one eighth of the total time on solution G may be sufficient to keep the drainage system free of encrustations. In severely infected cases, on the other hand, it may be necessary that solution G be used as the irrigating fluid for 50 per cent or more of the total time.

\*From the Surgical Service of the 5th General Hospital.

<sup>1</sup>Suby, H. I., Albright, F.: New England J. Med. 228-81, 1943.

In dealing with a patient on constant drainage with either a urethral, suprapubic, or perineal tube, the problem is different. The efficacy of this therapy is dependent on getting and keeping the solution in contact with the encrustations. Consequently it is necessary to instill slowly 2 to 4 ounces of the solution into the bladder and keep it there for two minutes, then allow it to drain out. This procedure should be repeated at least three times, twice daily. In severe cases it may have to be done as often as every four hours. A simple effective closed drainage system is illustrated in Fig. 1. This closed sterile system prevents the possibility of contamination at the time of irrigation. If solution G is

used as the only irrigating fluid, this type of system can usually be kept clean indefinitely.

#### SUMMARY

Attention is directed to the efficacy of Solution G in preventing crystallization and calculus formation during constant urinary drainage. This solution is a solvent of calcium phosphate and calcium carbonate, yet is relatively nonirritating to the urinary tract.

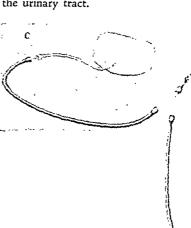
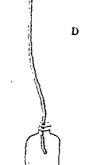


Fig. 1. Sterile closed irrigation set. (A) solution G; (B) clamp; (C) urinary bladder; (D) area of tube to be digitally compressed when clamp (B) is released for bladder irrigation; (E) drainage bottle.



December, 1945 429

## The Obligations of an Internist to a General Surgeon

Under the title "The Medical Correlator" Dr. A. E. Hedback contributed the lead editorial in the October 1945 issue of JOURNAL-LANGET. (It well might have been entitled "The General Praentioner Speaks to the Specialist.") In the October 1944 issue of SURGERY, Tr. Thomas Findley had something of the same kind to say in somewhat more humorous vein about the obligations of an internist to a general surgeon. We are pleased to reprint it herewith.

. . *. .* . . .

An internist has been defined as a man who is totally unable to answer either yes or no to any question. The definition was made in jest but there is much truth in it. If there is such a thing as a typical internist, he is a sedentary individual, curious, skeptical, reflective. He is accustomed to look at the patient as a unit rather than as a collection of separate organs and, if he has had the fundamental scientific training he should have had, he is eager to distinguish between a fact and someone's opinion. Although often powerless to suggest an alternative procedure, he regards every operation as an exercise in violent therapeutics and a confession of failure to cure. He is, however, humble before the complexities of modern surgical technique. His fees are not such as to command general admiration.

The surgeon, on the other hand, is a man of action. He lives in an exhilarating world of knives, blood, and groans. His tempo is of necessity rapid. He is inclined to look at his less kinetic colleague with an air of puzzled condescension but may, in a relaxed moment, admit that the medical man is occasionally able to assist uncomfortable dowagers in the selection of a cathartic. Accustomed to legerdemain and quick results, he is apt to regard the diagnosis and treatment of a headache, for example, as a trivial matter, forgetting that the internist may require hours of probing before discovering that what the patient needs is not a new pair of glasses but a different mother-in-law. The surgeon and the internist are workers in the same vineyard, but their points of view are inevitably different.

Of those patients who come to any clinic for help there is a certain small percentage who present definite and well-demarcated problems—a broken arm, a decompensated heart, a gravid uterus, for example. Of these the internist will claim his share and do what he can. Over and above these, however, is a larger number with ill-defined complaints who tax the resources of the entire staff. These are the ones who are commonly x-rayed from head to toe, whose fluids and excrements are examined with great skill, into whose every orifice electric lights are inserted—to no avail! The standard reaction on the part of the medical attendant then is that of anger. The patient is automatically regarded as an imposter who has no right to his symptoms and his visit to the clinic is looked upon as a nuisance and an intru-

sion. Actually, of course, these are perhaps the sickest people we see. It may be argued that they are merely suffering from such elemental emotions as grief, frustration, inadequacy, fear, or sorrow, that their problems are therefore non-medical, and that the clinic is not required to help them. If this is so, we are amateur physicians indeed

W. R. Houston has frequently and eloquently pointed out that sickness of any sort carries with it a curious and sometimes irresistible demand for action. There is nothing to which a sick man will not submit himself—he is gladly purged, puked, bled, transfused, sweated, infused, cut, frozen, heated, and shocked and he will swallow literally anything. It is seldom that the consequences of these actions are considered, for it is action itself that is demanded. Even the most normal of us howl and gyrate when thrust suddenly into pain; these actions serve no useful purpose whatever, but somehow they seem to bring relief.

And so these people come to us in their distress demanding both action and telief. This demand comes not only from the patient but from the family as well. One can never enter a sickroom without being immediately aware of immense forces at work. The urge to violence is often so compelling that it requires great courage to follow the wiser course and do nothing. Certainly it is a commonplace experience for patients to complain that we have found nothing for which to operate upon them, and it is no consolation to these people to be told that their roentgenograms and blood tests are negative. It is another curious fact that no one minds being told that he has something wrong with one or more of his organs, but he bitterly resents the implication that the trouble lies within himself. A heart that is failing a little, a sluggish liver, a pair of weak lungs-these are cherished and respected ailments-but a personality defect is accepted with the greatest reluctance.

In dealing, as it must, with individuals whose primary difficulty is emotional, a clinic finds itself in a peculiarly dangerous situation because a certain percentage of these patients will inevitably present some physical abnormality which, in a more stable host, would be a legitimate surgical target. The diagnosis of anxiety state, chronic reactive depression, or conversion hysteria is not made by exclusion, however, and it would be a major error to assume that an elderly housewife could not have a psychogenic backache and a fibroid tumor as well. The surgeon often accuses the internist of complacency and ignorance when he chooses to ignore a uterus which is not quite perpendicular, or a solitary gallstone, or a pair of tonsils from which a fluid of unknown composition can be expressed. There are certain people, however, who demand violence; the surgeon enjoys removing organs and one function of the internist is to see that these two never meet .- (THOMAS FINDLEY, M.D., New Orleans, La., from October, 1944 issue of Surgery.)

### Book Reviews

The Examination of Reflexes, by Robert Wartenberg, M.D. Chicago: The Year Book Publishers, Inc., 222 pages, illustrations, 1945, \$2.50.

The author recalls that Dorland lists nearly 250 reflexes. Between the years 1918 and 1935 seventy-six new pathologic reflexes were described. Considerable confusion obtains because authors are credited variably by writers and the name of a par-ticular reflex is determined irregularly from the site of its elicitation, the muscles involved, the ensuing movement, the joint on which it acts, the nerves involved, etc. Furthermore, responses due to decreased innervation, the associated -movements, and reflexes of spinal automatism, the so-called defense and postural reflexes, are not always clearly distinguished from what is essentially the true meaning of striated muscle reflex: a contraction stimulated preëminently by a brief concussion and stretching. The chief focus of attention should be on the muscle where action is provoked and not on the point of elicitation of the reflex. Classification on such "points" as tendon, bone, periosteum, joint, fascia, or aponeurosis is only misleading. Every muscle crosses one or more joints and in the waking state is comparable to a tautly drawn bowstring. Reflex contraction is obtained not only from either side of the bowstring but also from neighboring and even distant points, with the bone acting as transmitter of the mechanical stimulus. Multiple, even completely independent, reflexes may be elicited by one stimulus. The terms "paradoxic" and "antagonistic" reflexes are unjustified, because the phenomena thus labeled are merely occasional forms of well-known deep reflexes appearing under certain conditions and depending on particular techniques applied in their elicitation. Whereas every muscle has its deep reflex, only a

few have their superficial or skin evoked reflex as well.

Illustrations include seven figures. Figure 7 dramatically illustrates that in our literature the one plantar muscle reflex, indicated by plantar flexion of the toes when seven different areas of the foot are stimulated mechanically, has been given the name of twenty different writers between the years 1893 and 1933!

Hayfever Plants—their appearance, distribution, time of flowering and their role in hayfever, with special reference to North America. By ROGER P. WODEHOUSE, Ph.D. (associate director of research, Lederle Laboratories). Waltham, Mass.: Chronica Botanica Co., 245 pages, 73 illustrations, new and numerous tables. Series of Plant Science Books, vol. 15 1945. Price \$4.75.

This book, according to the author, "is intended to interpret the botanical facts of hayfever in terms of their clinical significance." It is an authoritative botany of hay fever by the author of Pollen Grains, universally known by allergists. Contents: The Botany of Hay Fever; The Hayfever Plants—Gymnosperms, Angiosperms, Monocotyledons, Dicotyledons; Regional Surveys; Glossary; Bibliography.

The first three chapters are devoted to pollens and pollination and the role that pollen plays in hay fever, as well as a description of all the allert pollen plays in the forest charges.

The first three chapters are devoted to pollens and pollination and the role that pollen plays in hay fever, as well as a description of all the plants known to cause hay fever, showing where they grow, when they flower and the characteristics which make them hay-fever plants. The last, or fourth chapter, is geographical, dealing with regional surveys with accurate and recent data on ten areas throughout the United States. Numerous illustrations of plants and their pollen grains, mostly drawn by the author, are very informative and bring out details frequently lost by photography. For convenience of presentation, there is a map in which the United States is divided arbitrarily into ten sections. The pollinating periods of hayfever plants in these regions represent accurate, recent surveys, with the most important plants clinically printed in heavy type. A choice is given to English names of current usage in the hayfever literature, and where there is a secondary choice it is added as a synonym. The print throughout makes it very easy reading

and the arrangement is excellent for ready reference. The references to local surveys of others are very complete, and there is a discussion on hay-fever resorts. There is a valuable glossary.

The book is indispensable to all physicians interested in

The book is indispensable to all physicians interested in allergy when managing their local hay-fever problems, and it is the most complete reliable text on the subject today.

Allergists will welcome this authoritative book on the flora, responsible for clinical hay fever and asthma, indigenous to their respective areas, when treating their pollen-sensitive patients.

Technical Methods for the Technician, by Anson Lee Brown, M.D., Columbus, O.: Third Edition; published by the author. 712 pages with laboratory index and general index, glossary, listing of 100 texts, illustrations and 12 color plates: 1944, price, \$10.

The director of a clinical laboratory and school for technicians, the author has endeavored to present a compendium of methods and procedures that will aid and save time for laboratory technicians. Since well equipped and properly staffed laboratories are now recognized as a necessity for the application of good medicine and with physicians in increasingly short supply, this book is especially timely and should be of help.

book is especially timely and should be of help.

The emphasis is on technique. The various procedures are interpreted, and the interpretations are worth while as the result of technique evaluation and the author having indicated the diseases in which the tests have pathologic significance. A brief outline will indicate the comprehensiveness of the volume: Laboratory Behavior; The Microscope; Urinalysis (56 pages); Blood (75 pages), Examinations, Blood Chemistry—covering in this section blood counts and the counting chamber; Serology (in which the author's test for syphilis is presented for the first time together with full details of the Wassermann test, the standard Kahn, Kline, etc.); Agglutination Tests: Tests for typhoid, undulant fever, tularemia, dysentery, typhus; Tissue Sectioning and Staining. As a refresher and/or reminder the book appears to be all inclusive and should be of assistance to prospective and currently working technicians.

Fractures and Dislocations (for Practitioners) by Edwin O. Geckeler, M.D. Baltimore: The Williams & Wilkins Co., 1944, 361 pages, \$4.50.

This is an excellent book. As the author states, it is probably of greatest interest to medical students, interns, and general practitioners who are not caring for many fractures. It also has points which may be of help even to men who specialize in orthopedics. The text is clear. The book has an unusually detailed table of contents, systematically arranged, and a general index. Through these reference may be quickly made to the subject which the reader desires most to see. The book contains numerous line drawings, reproductions of photographs and x-ray films wherever it is necessary to illustrate the condition under discussion. The text routinely takes up the etiology of the lesion, the manner of the examination, prognosis, treatment, follow-up, and precautions, and is entirely devoid of unnecessary words. The suggestions and directions for one of the standard methods of treatment of a given condition is to be found clearly and simply described and well illustrated. Certainly the author has accomplished his aim and the book can be freely recommended.

Radiologic Examination of the Small Intestine, by Ross Golden, M.D., professor of radiology, College of Physicians and Surgeons, Columbia university; director of the radiologic service, the Presbyterian hospital, New York. Philadelphia: J. B. Lippincott Co., 240 pages with 183 illustrations of subjects in 75 figures, 1945, \$6.00.

This is a valuable contribution to a relatively neglected phase of roentgenology written by a well-known teacher and recognized authority in the field of radiology. It is profusely illustrated and includes the results of the author's personal investigations as well as the opinions of numerous other contributors to the subject. Of particular interest and importance at this time are the descriptions of lesions of the small intestines due to various nutritional disorders and to parasitic infestations.



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Medical Profession of SOUTH DAKOTA AND MONTANA

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MINNEAPOLIS, MINNESOTA, DECEMBER, 1945

#### UNIVERSITY OF SOUTH DAKOTA MEDICAL SCHOOL ADOPTS FOUR-YEAR CURRICULUM

We note with pleasure that the University of South Dakota plans to extend its medical school curriculum from two to four years. The expansion was authorized by the 1945 legislature when the two-year school was threatened with loss of its accreditation.

The first junior students will be admitted in the spring of 1946, and the present sophomore class will be the first to continue training at the university. President I. D. Weeks states that the new curriculum will enable more South Dakotans to study medicine and predicts that it will encourage graduates to remain and practice in the state. The school will also provide refresher courses for practicing physicians and will serve as a health and medical service center.

Detailed plans for the junior and senior years are be-

ing arranged by Dr. T. C. Ohlmacher, dean of the medical school, and Dr. Edwin Shaw, professor of biochemistry, in cooperation with physicians in private practice. Dr. Ralph L. Ferguson, formerly senior pathologist at Edgewood Arsenal, Maryland, has joined the faculty as professor of pathology and will assist in the organization of the four-year course. Other faculty members will be added this winter.

The Sioux Valley and McKennan hospitals at Sioux Falls will be utilized for the junior year clinical work. The senior year will be organized on a preceptor basis, utilizing other hospitals in the state. The state hospitals at Yankton and Sanator will also cooperate in the pro-

The Journal-Lancer extends congratulations to the State of South Dakota and best wishes to the immediate participants in this forward-looking movement.

A.E.H.

#### PREVENT TB-BUY CHRISTMAS SEALS

The 50th anniversary of the x-ray finds tuberculosis associations throughout the nation, health departments, and the U. S. Public Health Service using the mass



x-raying of large groups of apparently healthy people as a first line of attack against tuberculosis, which still takes a life every nine minutes in the United States.

Tuberculosis associations and health departments now have more than three hundred mobile x-ray units — actually x-ray clinics on wheels — in

operation. In the past six months the Hennepin County (Minnesota) Tuberculosis Association has made more than 9000 chest x-ray examinations as a Christmas seal supported public service. The U. S. Public Health Service, operating eight mobile x-ray units installed in special buses, in two years examined more than one million industrial workers and found more than 15,000 with infectious or noninfectious tuberculosis.

A mobile unit costs approximately \$18,000. It is estimated that there are about half a million cases of active tuberculosis in the United States, of which 200,000 are unknown. Every person in the United States could be examined within a year with some two thousand mobile x-ray units, according to Dr. Herman E. Hilleboe, chief of the Tuberculosis Control Division, U. S. Public Health Service. The cost of these units would be \$35 million, operating expense \$25 million—a total less than the cost of a battleship. Universal chest x-ray examinations are no dream but a definite goal of the official and voluntary health agencies.

In the meantime the annual sale of Christmas seals continues to maintain throughout the country such established tuberculosis control services as a year-round program of health education for children and adults, homes and rehabilitation for the care of former tuberculosis patients, to prevent relapses, and to provide clinics and nurses to seek for unknown cases.

The 39th annual sale of Christmas seals is now being conducted to provide funds to maintain an alert against any possibility of a postwar increase in incidence of this disease.

# WHAT ARE WE WILLING TO PAY FOR HEALTH?

Writing under this title in a recent issue of *The New York Times Magazine*, Dr. Theodore G. Klumpp refers to the five bills relating to the promotion of science now before Congress as "signs that like Rip Van Winkle we are awakening to the importance of science to our national welfare." At the same time he thinks we fail to realize the overwhelming importance of providing for medical research as a part of our program to advance science.

"The extent of disease and disability is so great," Dr. Klumpp writes, "that medical research has without question the richest field in science for its exploration."

A thoroughgoing revision of our present conception of medical research is necessary if we are to devote to it

the effort and resources demanded. Dr. Klumpp suggests that medical research is far too important a problem to be left, as with a few notable exceptions it is at present, to the spare time of overburdened physicians, professors, and students in our medical schools. The full-time attention and devotion of thousands of research men are needed.

A country that devotes huge sums to agricultural research and advertising, the doctor affirms, while spending a comparative pittance on the problem of solving the most serious problem of civilized man—the deaths and disabilities from disease and premature old age—has a topsy-turvy set of values.

#### THE DOCTORS RETURN

The wheel has come full circle. As this final issue of the JOURNAL-LANCET'S 75th year goes to press, the trials of Japanese and Nazi war criminals are in progress and medical journals and societies that four years ago were beginning to announce the departure of their subscribers and members for service are now kept busy announcing their return to practice. Dr. Irvine McQuarrie of the University of Minnesota heads a committee that has the responsibility of helping to place these returned men in civilian medical service.

In Montana Dr. Paul Eneboe has returned to Bozeman and will resume practice in the Eneboe-Sabo Clinic early in 1946, after special study in obstetrics and pediatrics in Chicago. Dr. Claude M. Mears, flight surgeon and captain with the Army Air Force for three years, has returned to practice with the Medical-Surgical Clinic, Helena. Lt. Col. D. N. Monserrate, who was port surgeon at Southampton, England, in charge of evacuation of medical cases from France to England, and then to the United States, has returned to Helena and will resume his medical and surgical practice in the spring of 1946, following graduate study in California. Major M. O. Anderson will resume practice in Hardin after nearly three years of overseas duty and service in eight major campaigns in Europe and North Africa.

In North Dakota, Dr. A. Veitch, a captain in the Army Medical Corps, has taken up practice at Lisbon.

Minnesota doctors returning to practice include Dr. Albert I. Balmer, Edgerton; Dr. D. M. Potek, International Falls; Dr. B. A. Flesche, Lake City; and Dr. Henry A. Korda, St. Cloud.

Minneapolis physicians resuming practice include: Dr. Charles A. Aling, Dr. Samuel G. Balkin, Dr. Harold G. Benjamin, Dr. James Blake, Dr. Max Broude, Dr. Carl G. Caspers, Dr. S. Alan Challman, Dr. Reuben F. Erickson, Dr. Reinhold M. Ericson, Dr. Edward T. Evans, Dr. Douglas P. Head, Dr. Willis L. Herbert, Dr. Emil W. Johnson, and Dr. Russell C. Lindgren.

Dr. D. R. Gillespie, formerly a Fellow at Mayo Foundation, Rochester, Minnesota, returned to St. Paul November 2 after spending 22 months in the southwest Pacific in New Guinea and the Philippines with the 247th General Hospital. He plans to resume practice early in 1946.

These are but a few of those resuming practice. The names of others will be found under News Items.

DECEMBER, 1945 433

#### MEET OUR CONTRIBUTORS

DR. RALPH I. CANUTESON, president, MELBOURNE MURPHY, and DR. WARREN ELLSWORTH FORSYTHE, past president, contribute the addresses made before the council meeting of the American Student Health Association in Minneapolis last May.

Dr. Canuteson, who contributed an editorial on college health service to our October issue, is head of the health service

at the University of Kansas.

Mr. Murphy of the University of Michigan health service is also an instructor at the University School of Public Health. The direction of his leisure-time activities is indicated by a term as president of the Ann Arbor Civic Orchestra,

Dr. Forsythe, director of the University of Michigan health service, and well known for many years in his chosen field of medical service, is also professor of hygiene and public health

at the university, which is his alma mater.

DR. Andrew F. M. de Roetth of Spokane is a graduate of the University of Budapest (1919) and pursued graduate study there and at Tubingen (1919-23). Dr. de Roetth, whose specialty is ophthalmology, is a member of the AM.A, the American Academy of Ophthalmology and Oto-Laryngology, and the International College of Surgeons. Formerly associate professor at the University of Budapest and Pécs and lecturer at Northwestern University Medical School, he has practiced at

Northwestern University Medical School, he has practiced at Spokane for the past six years.

Dr. W. L. Meyer of Sanator, South Dakota, is a graduate of the state university of South Dakota and had his medical training at Creighton University (1930). He was president of the Black Hills District Medical Association in 1944 and is a member also of the South Dakota State Medical Association, the A.M.A., and the American College of Chest Physicians. Dr. Meyer, whose specialty is tuberculosis, has practiced at

Sanator for six years.

DR. Howard I. Suby of Boston, a medical officer with the U. S. Army (hospital unit) at the time he contributed the article published in this issue of JOURNAL-LANCES, is a graduate of Harvard Medical School (1934) who did graduate work at Boston City Hospital and Massachusetts Genetal Hospital pital, where he was Dalton Research Fellow. His specialty is urology. He is a member of the New England Branch, American Urological Association, and the Massachusetts Medical Society. Dr. Suby has now resumed practice in Boston.

#### ANNOUNCEMENT OF VAN METER PRIZE AWARD

The American Association for the Study of Gotter again offers the Van Meter Prize Award of three hundred dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association which will be held in Chicago, Illinois, in April or May, 1946, provided essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or re-search investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy sent to the corresponding Secretary, Dr. T. C. Davison, 207 Doctors Building, Atlanta 3, Georgia, not later than February 20, 1946. The committee, which will review the manuscripts, is composed of men well qualified to judge the ments of the competing essays.

A place will be reserved on the program of the annual meeting for presentation of the prize award essay by the author, if it is possible for him to attend. The essay will be published in the annual proceedings of the association. This will not prevent its further publication, however, in any journal selected by the author.

#### News Items

Dr. Robert Anderson has returned to his native Livingston, Montana, to practice, after completing his interneship and surgical residence at Colorado General Hospital, Denver.

Dr. R. W. Spicher has been warmly welcomed as physician and surgeon at Terry, Montana, where he has established a home with his wife and infant son. Prairie County has long needed a permanent medical man, according to the Terry Tribune. A native Montanan, Dr. Spicher is a graduate of Northwestern University Medical School,

Dr. Joseph F. Borg, St. Paul, was elected president of the American Therapeutic Association at its recent meeting in Cincinnati.

The Grand Forks District Medical Society met on October 17 at the Deaconess Hospital, with 67 present. Dr. Arlie R. Barnes of the Mayo Clinic spoke on "Cardiac Disorders Amenable to Surgical Treatment," Dr. C. D. Creevy, Minneapolis, on "Some Unusual Aspects of Renal Tumors," and Dr. George B. Eusterman, Mayo Clinic, on "Diseases of the Liver, Gallbladder and Biliary Tract." Dr. Barnes's paper appeared in the November Journal-Lancet.

Dr. Reuben C. Johnson, Minneapolis, has been elected president of the Minnesota Society of Internal Medicine. Dr. Charles Watkins of the Mayo Clinic is the new vice president and Dr. Alex Brown, also of the Mayo Clinic, the secretary-treasurer.

Licenses to practice medicine in Montana have been granted to Doctors Eugene Hildenbrand, Great Falls; Leonard M. Benjamin, Butte; Harold E. Coulston, Powell, Wyoming; Clarence A. Bush, Beach, North Dakota; and Bernard L. Orbins, Glendive, Montana.

Dr. William F. Cogswell, Montana director of public health and executive officer of the Montana Board of Health for the past thirty-three years, has announced his retirement effective April I, 1946. Dr. Cogswell, oldest state health officer in the United States in term of service, was the initiator of the Rocky Mountain laboratory of the U. S. Public Health Service in Hamilton, Montana. Dr. David T. Berg, Helena, will succeed Dr. Cogswell as executive officer of the state board of health.

Dr. Joseph Robert Truscott, physician and surgeon at Binford, North Dakota, for over twenty years, has left there and will study at a university in eastern Canada.

The Mount Powell Tri-County Medical Society mer November 19 at Anaconda to hear an address by Dr. J. J. Malee on "Differentiation and Treatment of Various Types of Shock in the Army,"

The examination of the American Board of Ophthalmology will be held June 22-25, 1946, in San Francisco. The change in time and place was made because of transportation difficulties.

Lt. Col. Harold T. Little, Duluth, has been appointed surgeon to the Army's Alaskan department.

Dr. J. Richards Aurelius, St. Paul, was appointed by the American College of Radiology as a member of the advisory committee for the nation-wide celebration of the fiftieth anniversary of the discovery of x-rays, held the week of November 5.

Dr. Ralph Vinje has returned to his former practice at Beulah, North Dakota, after over four and a half years of continuous active duty with the Army Medical Corps. Dr. Vinje spent 36 months overseas, took part in three Pacific theater campaigns, and was awarded the American Defense ribbon, Asiatic-Pacific theater ribbon with three campaign stars, Philippine Liberations ribbon with one campaign star, the Bronze Star for heroic achievement in combat, and the Combat Medical badge. He saw his son, 3-year-old Ralph Allen, for the first time in June of this year.

The November meeting of the Hennepin County Medical Society was devoted to reports by staff members of the U. S. Army General Hospital 26 on activities of their unit in North Africa and Italy. Dr. L. Haynes Fowler spoke on "Surgical Service," Dr. Russell C. Lindgren on "Medical Service," and Dr. Douglas P. Head on "The Peptic Ulcer Problem in the Army."

Dr. Kurt S. Tauber and Miss Margery C. Adams, daughter of the late Dr. G. S. Adams, were married at Yankton, South Dakota, September 15. Dr. Tauber, now an American citizen, had his medical training at the University of Vienna. He has been a member of the state hospital medical staff at Yankton since 1941.

Capt. Carson B. Murdy, Aberdeen, South Dakota, has returned from service overseas and will be associated with his father, Dr. Beecher C. Murdy, in the practice of medicine.

A full standard public health unit for the area has been asked by the Burleigh County, North Dakota, Farmers Union. The union's resolution pointed out that North Dakota, which is 70 per cent rural, has only 7 physicians, 10.4 nurses, and 2.5 dentists per 10,000 of population, and that 48.9 per cent of the state's inductees were rejected for military service.

Physicians resuming private practice after war service include Dr. T. L. Trelstad, Crosby, Minnesota, who will be associated with Dr. B. A. Smith; Dr. Paul Bjelland, Minneapolis; and Major Wallace E. Anderson, Thief River Falls, Minnesota.

The North Minnesota Medical Association held its annual session and 25th anniversary meeting November 3 at Fergus Falls. Dr. H. L. Parker, Rochester, spoke on wartime Ireland and consultant practice; Dr. W. T. Peyton, Minneapolis, on early herniation of the intervertebral disc; Dr. W. A. O'Brien, Minneapolis, on postgraduate medical education; Dr. Corrin Hodgson, Rochester, on common misinterpretations in medical diagnosis; Dr. William A. Stafne, Fargo, North Dakota, on the recognition of malignant lesions of the stomach; and Dr. Richard Lynn Varco, Minneapolis, on preoperative dietary preparation for surgical patients.

Governor Thye of Minnesota has appointed a committee to study hospital and health needs, with a view to raising standards and improving and integrating public health efforts. The first meeting was held November 9.

The North Dakota Society of Obstetrics and Gynecology, meeting at Minot, November 3, held the following program: Dr. Carl Baumgartner, Bismarck, spoke on "Transverse Presentations"; Dr. R. T. LaVake, University of Minnesota, on "Serology and Obstetrics"; Dr. Paul Breslich, Minot, on "Gynecologic Pathology"; Dr. G. Wilson Hunter, Fargo, on "Acute Lymphatic Leukemia"; and Dr. Duncan E. Reid, Harvard Medical School and Boston Lying-in Hospital, on "Problems of Protracted Labor."

Lt. Com. Harry B. Neel, Albert Lea, Minnesota, surgeon, has an article entitled "Anesthetic Agents in the Treatment of Battle Casualties," in the September U.S. Naval Medical Bulletin. Dr. Neel, at present stationed at Norman, Oklahoma, served on hospital ships for several months in the Pacific area.

Lt. (jg) Darrell E. Westover, Fergus Falls, Minnesota, of the Navy Medical Corps, has left for Pearl Harbor.

Dr. Wallace P. Ritchie, who served 33 months overseas with the 26th General Hospital in England, North Africa, and Italy, and was the first medical officer to receive a discharge under the point system, was the luncheon speaker at the fall board meeting of the Woman's Auxiliary, Minnesota State Medical Association, St. Paul, November 8.

Dr. L. S. Jordan, superintendent of the Riverside Tuberculosis Sanatorium, Granite Falls, is the new president of the Minnesota Public Health Association, succeeding Dr. F. E. Harrington. At the annual meeting of the association in October Dr. Harrington warned that all service men returning home should be x-rayed promptly to determine whether they have tuberculosis symptoms. Dr. J. A. Myers, chairman of the education committee, announced a new tuberculosis program for public schools, under which schools will receive certificates when 95 per cent of students, teachers, and employees have taken x-ray tests.

Dr. James Francis Hanna, Fargo, president of the North Dakota State Medical Society, addressed the Grand Forks District Medical Society at its meeting of November 21, 1945, on the subject "The North Dakota Medical Profession and the Postwar Period."

Slope County, North Dakota, held the second of a series of free clinics to protect children against smallpox, diphtheria, and whooping cough on October 30 and 31. The clinics are conducted by Dr. Mary Soules, district health officer.

Dr. F. R. Schemm, Great Falls, has returned from an extended trip east, during which he gave papers on the treatment of heart disease in Kansas City and Chicago and attended a meeting of the American Physicians' Council at Ann Arbor. He was accompanied by his wife, who is Mildred Walker, the novelist.

Dr. John Esser of Perham, Minnesota, has been appointed village physician and chairman of the board of health.

#### Necrology

Ethel Remington Beede, 64, Faribault, Minnesota, died at Cheyenne, Wyoming, October 13, after she was taken off a train when she suddenly became ill. Dr. Beede, a graduate of the University of Minnesota medical school, retired from the medical staff of the Minnesota State School and Colony in Faribault late in 1944, after more than twenty-six years of service, and since then had been vacationing in various parts of the country. She had planned to rejoin the school medical staff in November.

John LeRoy Burton, 41, Buhl, Minnesota, only physician of Buhl and head of the St. Louis county hospital there, was killed October 31 when his car went into a ditch as he was returning from a country call. Dr. Burton was a 1936 graduate of the University of Minnesota medical school.

Dr. Albert Carr, 90, died October 31 at Rapid City, South Dakota. A resident of the Black Hills for fifty years, he had practiced in Hill City until about five years ago. Funeral services for Dr. Carr, who left no known relatives, were conducted by the Masonic Lodge of Hill City.

Dr. Nathan Freeman Doleman, 68, physician at Tintah, Minnesota, for forty years, died November 8 in Kansas City, while en route to McAllen, Texas, with Mrs. Doleman to spend the winter.

Dr. Charles Floyd Jump, 63, died October 23 at Fort Harrison veterans' hospital, near Helena, Montana, after an illness of about ten days. Lt. Col. Jump, a native of Illinois, served with the Montana 163d infantry in World War I and as state medical officer for the Montana headquarters of selective service in World War II.

Dr. Edward Thomas Anderson, 76, died at the veterans' hospital, St. Cloud, Minnesota, November 1. Dr. Anderson, a veteran of World War I, practiced medicine in South Dakota for some years, and had lived in Excelsior. Minnesota, from 1923 to 1939.

Dr. Clarence Good Shearon, 46, Chicago, died November 17 of a heart attack. A native of Elk Point, South Dakota, Dr. Shearon was national medical director of Montgomery Ward & Company and a director of the Illinois Social Hygiene League.

Dr. Harold D. Palmer, 44, died of a heart attack while visiting the home of a patient at Bryn Mawr, Pennsylvania, November 20. Dr. Palmer, a native of Fairmont, Minnesota, and a graduate of the University of Minnesota Medical School, was professor of psychiatry at Women's Medical College, Philadelphia, and associate professor of psychiatry at the University of Pennsylvania. He contributed an article, "Mental Disorders of Old Age," to the special geriatrics issue of JOURNAL-LANCET in June 1944 and was expected to contribute to the new bimonthly journal, Geriatrics.

#### Classified Advertisements

#### INTERNIST AVAILABLE

Internist, thirty-seven, married, Diplomate, American Board Internal Medicine, veteran, just released from Army, excellent hospital appointments during entire Army career, excellent training, excellent references, desires association with group. Address Box 829, care of this office.

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Hypervitam is a multiple, high potency vitamin formula for the treatment of vitamin deficiency by oral administration. It is based on wide clinical experience which finds that symptoms of avitaminosis are almost always multiple in character and that intensive dosages of the lacking vitamins are required for satisfactory results.

ractory results.

For the treatment of sick, surgical, debilitated, and convalescent patients, a daily dose of three Hypervitam capsules prowides: vitamin A, 30,000 U.S.P. units; thiamins (B), 30 mg; riboflavin (B), 15 mg; nacinamide, 150 mg; pyrdoxine, (Bo) 3 mg; calcium pantothenate, 15 mg; ascorbic acid (C), 300 mg; vitamin D, 3,000 U.S.P. units; alpha tocopherol (E) 30 mg.

Since nutritional failure may be associated with almost any disease, the company points to the many indications for the prescribing of Hypervitam.

Lipo-Heplex for Oral Vitamin B Complex Therapy

Lipo-Heplex is said to be a more complete oral preparation for the treatment of vitamin B deficiencies. It may be expected to provide substantially greater and more rapid improvement than less complete formulas lacking one or more of the essential liver fractions. Lipo-Heplex combines three significant fractions of livers aqueous, 80 per cent alcohol insoluble, and lipoid with important crystalline B factors.

Each Lipo-Heplex capsule provides the vitamin extracts and concentrate (water-soluble, 80 per cent alcohol-insoluble, and lipoid fractions) derived from a total of 11.5 grams of liver, including folic-acid fractions (L. casel factor [Bcl etc.) biotin, inositol, and other nutritional factors present in the liver fractions. Each capsule contains:

Thiamine HCl (B <sub>1</sub> )	2.0	mg.
Ribonavin (B.)	20	
Niacinamide	10.0	mg.
Pyridoxine HCI (B <sub>1</sub> )	0.1	mg.
Calcium Pantothenate	3.0	mg.
Choune	10.0	ma
Inositol	5.0	mg.
Folic-acid fractions	10.0	mcg.

Hypervitam is supplied in bottles of 30, 60, 90, 500, and 1000 capsules. Lipo-Heplex is issued in bottles of 100, 250, 500, and 1000 capsules. Detailed literature is available from the U. S. Vitamin Corporation, 250 East 43d St., New York 17, N. Y.

#### THE DETAILMAN AT WAR

It would make an interesting story if one could collect the war history of the many detailmen who have entered the armed services. We know that the full quota of the representatives of drug manufacturers have done their share as soldiers and sailors, many of them holding responsible positions in the medical services, in hospitals, and as hospital pharmacists. Many went directly into the Army purchasing offices, where their knowledge of pharmaceuticals and specialties was of great value in the various phases of the medical procurement services. These men have done their job well. It is an exciting and interesting moment when the detailman returns to civilian life and is again ready to take his bag and renew his professional work among the physicians and hospitals.

Like detailmen of other organizations, those from Bilhuber-Knoll Corp. have given a good account of themselves in the war. Several have already returned. These men were not re-placed during the war and have their choice of territories as they return. We know they are anxious again to be in a position to call on their many doctor friends and again present the merits of Metrazol, Dilaudid, Theocalcin, and other Bilhuber-Knoll specialties.

#### BURROUGHS WELL'COME & CO. INTRODUCES "METHEDRINE" INJECTION

Burroughs Wellcome & Company announces the availability of "Methedrine" brand d-Desoxyephedrine Hydrochloride Injection for distribution through prescription channels. "Methedrine" is a sympathomimetic drug which exerts a marked and relatively prolonged rise in blood pressure following parenteral administration. "Methedrine" Injection is indicated during operative procedure to maintain blood pressure or restore it to normal. It is also valuable as an analeptic in the treatment of coma caused by alcoholism or overdosage of sedatives or hyp-

Available in one strength only: 20 mgm. in 1 cc., boxes of 6, \$1.20; 12, \$1.90; and 100 ampuls, \$2.85 (list prices).

#### Wyeth "Pioneers of American Medicine" Paintings Prove Popular at Pharmaceutical and Medical Meetings

Wyeth paintings, "Pioneers of American Medicine," executed by Dean Cornwell and depicting colorful scenes in the history of American medicine and pharmacy, are in popular demand from coast to coast. Here is a schedule of exhibitions the paintings have filled recently:

The Hotel Taft, New Haven, Conn., for the occasion of the celebration of the 20th anniversary of the founding of the Connecticut College of Pharmacy.

At a meeting of the College of Osteopathic Physicians and Surgeons, Los Angeles, Calif., the week of November 12, in connection with that organization's annual meeting.

At the Santa Barbara Museum of Art, Santa Barbara, Calif., November 24 to December 5, in connection with that community's next war loan drive, which ties in closely with the activities of the Army's Medical Department at Hoff General Hospital. Meanwhile, "Osler at Old Blockley," in which Mr. Cornwell has depicted the great and benign Dr. Osler when he worked and taught at the Philadelphia General Hospital, is being used by the Wilmington Blue Cross Association in celebration of the

10th anniversary of the Blue Cross in Delaware.
"The Dawn of Abdominal Surgery" was recently used by the Red Cross at Covington, Ky., in connection with its health

educational drive among school children there.

Originals of the paintings, "Pioneers of American Medicine" are available for similar exhibitions and meetings by writing to Richard Roley, Director of Public Relations, Wyeth Incorporated, 1600 Arch Street, Philadelphia, Pa.

#### THE VALUE OF PLAIN GELATINE IN REDUCING DIETS

When foods of high carbohydrate or fat content are cut out of a diet for reducing purposes, the tolerable proteins those foods contain are eliminated too. Not only should these "lost" proteins be replaced, but it is often advisable to augment them as well. The average person on a reducing diet should maintain a daily intake of at least 100 grams of protein. This is often difficult without a supplementary source of protein.

For such diets, a practical supplementary protein is Knox Gelatine (U.S.P.). Knox contains no sugar or flavoring—it is all protein, and it provides seven of the ten essential amino acids. But the value of Knox lies not only in the supplementary protein it provides; it also helps patients make their limited

diets more interesting and varied.

Today many doctors are finding the Knox booklet, Reducing Diets and Recipes, a practical help. Its low-calorie recipes include liberal amounts of the protective foods and are planned to make the diet interesting and appetizing. Approximate food values are listed for each serving to help patients keep within the prescribed calorie limits. These booklets may be had free by writing to Knox Gelatine, Johnstown, N. Y.

#### ANY PHYSICIAN MAY EXHIBIT "WHEN BOBBY GOES TO SCHOOL" TO THE PUBLIC

Under the rules laid down by the American Academy of Pediatrics, their educational-to-the-public film, "When Bobby Goes to School," may be exhibited to the public by any licensed physician in the United States. All that is required is that he obtain the endorsement of any officer of his county medical society. Blanks for this purpose may be obtained on application to the distributor. Such endorsement is not required for showings by licensed physicians to medical groups for the purpose of familiarizing them with the message of the

film in advance of public showings in the community.

"When Bobby Goes to School" is a 16 mm. sound film, free from advertising, dealing with the health appraisal of the school child, and may be borrowed without charge or obligation on application to the distributor, Mead Johnson & Com-

pany, Evansville, Indiana.

#### SQUIBB RELEASES VITAMIN FORMULA FOR DEFICIENCY DISEASE THERAPY

A new product, designed especially for the treatment of patients suffering from mixed vitamin deficiencies, has been released by Squibb under the name of Therapeutic Formula Vitamin Capsules. Based on a scientific realization that the therapy of mixed vitamin deficiencies can be met neither by the use of current maintenance multivitamin preparations, nor by any simple multiplication of the dosage of such preparations, Therapeutic Formula Vitamin Capsules present potencies of therapeutic magnitude of all the vitamins, lack of which has been shown to cause deficiency states commonly occurring in man.

The formula, which was developed in the light of the latest clinical findings and which harmonizes with the views of recognized leaders in the field of nutritional therapy, provides in each capsule: vitamin A, 25,000 units; vitamin D, 1000 units; thiamine hydrochloride, 5 mg.; riboflavin, 5 mg.; niacinamide, 150 mg.; ascorbic acid, 150 mg. In the average case of moderate mixed vitamin deficiency, one capsule daily provides the minimum therapeutic dose; in severe cases, two capsules. Therapeutic Formula Vitamin Capsules are available in bottles of 100.

# The Journal-Lancet

INDEX TO
VOLUME LXV
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North Dakota State Medical Association

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#### INDEX OF AUTHORS

AAGAARD, G. N., Objective tests of cardiac function, 391 ABRAMSON, MILTON, Anesthetic aspiration asphyxia as a cause of maternal mortality and morbidity, 19

Adams, Forrest H., Rubella in pregnancy and congenital malformations, 197

Adams, John M., A third epidemic of primary virus pneumonitis among infants in Minnesota, 192

ALTEMEIER, W. A., Penicillin in surgery, 93 ANDERSON, GAYLORD W., Global epidemiology, 47

Applewhite, C. C., Medical leadership in public health, 355

BARNES, ARLIE R., The consideration of two cardiac cases amenable to surgical treatment, 382 BAUER, W. W., Health education by the doctor, 106 BERGE, WENDELL, Justice and the future of medicine, 122 BOYNTON, RUTH E., Maternal and child health, 63

Tuberculosis deaths among children, 148 Brown, Frances M., The physician and the child with defective speech, 200

BYRD, OLIVER E., American Student Health Association News Letter, 202, 257

CANFIELD, ALBERT. See PETERSON, W. E., joint author. CANUTESON, RALPH I., College health service, 375

Health service objectives (presidential address), 419
CLARK, IVOR, Vision problems of military students with heavy academic loads, 23

CLAYMAN, S. G., An unusual case of primary carcinoma of the liver associated with diabetes mellitus, pulmonary tuberculosis and tuberculosis empyema, 144

COHEN, JOSEPH T., Dental arch development as a guide to time for malocclusion, 176

COHEN, SUMNER S., Tuberculosis of the cervical lymph nodes,

Counseller, Virgil S., and Sluder, Fletcher S., Hysterectomy: selection of the appropriate operation in the particular case, 26

CRUMP, E. PERRY, Convulsions in infants and children, 182 CUMMING, HARRY A., The management of acne vulgaris, 254

DIAMOND, JACK L., Rupture of heart: review and case report,

DIEHL, HAROLD S., Seventy-five years of medical journalism in

the Northwest, 82

Dwan, Paul F., The management of rheumatic fever, 199

Drew, Harry O., Thyrotoxicosis, 351

EDSALL, GEOFFREY, The control of disease by means of immunization, 50

EMERSON, HAVEN, Community health organization, 78 EWALD, PAUL P., Digitalis: its legitimate field of usefulness, 398 -, Pregnancy and diabetes, 13

FINDLEY, THOMAS, Obligations of an internist to a general surgeon, 429

FINK, DANIEL L., The detection of pulmonary tuberculosis on induction into military service, 5

FOKER, L. W., Changing attitudes toward industrial hygiene, 76 FORSYTHE, WARREN. See MURPHY, MELBOURNE, joint author.

GOEHL, R. O., Management of the common cardiac irregulari-

ties, 391 Gregg, Harold W., Factors in prognosis in coronary disease, 385

HACKER, GUY L., A survey of tuberculosis observed at Freeman Clinic 1934-1944, and related statistics, 140

HANSEN, ARILD E., Some problems in fat metabolism in children, 167

HANSEN, ERLING W., Ophthalmology, 248
HARRINGTON, T. L., The tuberculin test and health education, 139

HILLEBOE, HERMAN E., and NEWITT, ARTHUR W., Small film radiography in industrial groups, 133 Hoffbauer, F. W., Needle biopsy of the liver, 246

HOFFMAN, WALTER LEES, Ophthalmic migraine, 252

HOLINGER, PAUL H., Indications for bronchoscopy in pulmonary disease, 235

HOLMES, JOSEPH A., Observations on tropical disease, 272 Howard, Elna M., Erythroblastosis fetalis, 1

JENSEN, REYNOLD A., and WERT, ALVIN D., Conversion hysteria in children, 172

JORDAN, LEWIS S., Continuation of the Mantoux program in rural Minnesota, 142

KAMMAN, GORDON R., Fatigue as a symptom in depressed patients, 238

KEY, J. ALBERT, The problem of deformity in poliomyelitis, 358

LANNIN, BERNARD G. See LEVEN, N. LOGAN, joint author. LAWSON, CHESTER W., Malazia: medical observations in South China and notes on the health situation in an internment camp under the Japanese, 241

LAYMON, CARL W., Allergy in dermatology, 251 Leigh, R. E., Symposium on obstetrics, introduction, 211 LEVEN, N. LOGAN, and LANNIN, BERNARD G., Congenital

atresia and congenital tracheoesophageal fistula, 179

LIEBELER, W. A., Diagnosis and treatment of ectopic pregnancy, 218

LOWRY, ELIZABETH C., Chickenpox encephalitis, 191 LYNCH, FRANCIS W., Ringworm of the scalp (Tinea capitis),228

McDougall, Bernard, X-ray discovered 50 years ago, 422 McPhee, H. R., Spurious fitness by the endurance test, 226 MAXEINER, STANLEY R., Resection of pancreas for hyperinsulinism due to islet-cell tumors, 256

MEYER, W. I., Diagnosis and postsanatorium care in pulmo-

nary tuberculosis, 426 Moore, O. M., Roseola infantum, 243

MORLOCK, CARL G., Indications for the surgical treatment of peptic ulcer, 8

MURPHY, MELBOURNE, and FORSYTHE, WARREN, College health service to civilians and military students, 421

Myers, J. Arthur, The conquest of tuberculosis, 55

NADLER, SAMUEL B. See PLATOU, R. V., joint author. NEWITT, ARTHUR W. See HILLEBOE, HERMAN E., joint author.

Ockerly, Orville. See O'Leary, Paul A., joint author. O'LEARY, PAUL A., and OCKERLY, ORVILLE E., Syphilis of the lung, 154

PARRAN, THOMAS, Foreword to 75th anniversary issue, 37 PETERSON, W. E., and CANFIELD, ALBERT, Miliary tuberculosis vs. typhoid fever, 138
PILPEL, HARRIET F. See STONE, ABRAHAM, joint author.

PLATOU, R. V., and NADLER, SAMUEL B., Jaundice in infancy and childhood, 186

Pohl, John F., Glomus tumor, 253

-, The Kenny concept and treatment of infantile paralysis, 265

QUISLING, SVERRE, Treatment of deafness, ear-noises and dizziness by hypothermic therapy, 219

RANSOM, E. M., Placenta praevia, 212

RICHARDS, W. E., Body minerals, 316

DE ROETTH, ANDREW, Hypofunction of the lacrimal gland and the Sjögren syndrome, 423

Rosenow, Edward C., Specific types of Alpha streptococci and streptococcal precipitinogen in air, 108

SEMSCH, ROBERT D., and STOESSER, ALBERT V., Intratibial infusions in children, 194

SHAPIRO, M. J., Treatment of rheumatic fever, 400 SIGEL, HARRY, Dermatological problems in a college with

A.S.T.P. students, 15 SIMMONS, JAMES STEVENS, Recent advances in the control of insect-borne diseases, 38

SINAI, NATHAN, Organization for medical care, 69

SLUDER, FLETCHER S. See Counseller, VIRGIL S., joint author.

SMILEY, DEAN F., Health education, 71

STARE, FREDRICK J., The improvement of health through bet-ter nutrition, 65

STARK, LEONARD J., Low back pain in the Army Specialized Training Program, 223

STIEGLITZ, EDWARD J., Preventive geriatric medicine, 60 STOESSER, ALBERT V. See SEMSCH, ROBERT D., joint author. STONE, ABRAHAM, and PILPEL, HARRIET F., The present-day status of contraception, 101

Suny, Howard I., Prevention of crystallization and stone formation during urinary drainage, 428

URENN, B., Abrupto placenta, 215

WALTERS, RAYMOND, Higher education in the postwar era, 17 WATSON, CECIL J, On the founding of a Variety Club Heart Hospital, 402

WERT, ALVIN D. See JENSEN, REYNOLD A., joint author. WINTE, S. MARX, Introductory statement, special heart issue,

WHITTAKER, HAROLD A, Achievements in environmental sani-

tation, 43 WICKS, F. L., Presidential address, North Dakota State Medical Association, 305

WILSON, JAMES L. Poliomyelitis (editorial), 405

WITTICH, F. W., Use of the passive transfer or indirect method of skin testing in allergic diseases, 249

Wolf, Thera H., The reading disability: a pediatric prob-lem, 184 WYLER, CARL I. Neurotic problems in a student practice, 104

#### INDEX OF ARTICLES

Abrupto placenta, B. URENN, 215

Achievements in environmental sanitation, HAROLD A. WHIT-TAKER, 43 Acne vulgaris, management of, HARRY A. CUMMING, 254

Alcoholic thirst, 231

Allergy:
Allergy in dermatology, CARL W. LAYMAN, 251
Use of the passive transfer or indirect method of skin testing in allergic diseases, F. W. WITTICH, 249
Conditions of the Aller Association:

Editorial by president, 375

Fourteenth Annual Report of Tuberculosis Committee, 322 News-Letter and Digest of Medical News, 130, 158, 202, 231, 257

Proceedings, Council Meeting, 415

Anesthetic aspiration asphyxia as a cause of maternal mortality and morbidity, MILTON ABRAMSON, 19

Anxiety neurosis (editorial), 260

Atresia: Congenital atresia and congenital tracheoesophageal fistula, N. Logan Leven and Bernard G. Lannin, 179

Birthmarks, The inheritance of, 203

Body minerals, W. G. RICHARDS, 316 Bronchoscopy, Indications for in pulmonary disease, PAUL H. HOLINGER, 235

Cancer control (editorial), 161 Chances of spreading scarlet fever in the family, 258 Changing attitudes toward industrial hygiene, L. W. FOKER, 76

Cheese and typhoid fever, 159 Chickenpox encephalitis, ELIZABETH C. LOWRY, 191

Child health and medical care, federal-state programs for (editorial), 205

College health service (editorial), 375

College health service to civilians and military students, MeL-BOURNE MURPHY and WARREN E. FORSYTHE, 421

Community health organization, HAVEN EMERSON, 78
Congenital atresia and congenital tracheoesophageal fistula, N. LOGAN LEVEN and BERNARD G. LANNIN, 179
Conquest of bovine tuberculosis, The, 159
Conquest of tuberculosis, The, J. ARTHUR MYERS, 55

Consideration of two cardiac cases amenable to surgical treat-

ment, The, ARLIE R. BARNES, 382 Continuation of the Mantoux program in rural Minnesota,

LEWIS S. JORDAN, 142

Contraception, The present-day status of, Abraham Stone and Harriet F. Pilpel, 101

439

Control of disease by means of immunization. The Geoffrey EDSALL, 50 Conversion hysteria in children, REYNOLD A. JENSEN and AL-

VIN D. WERT, 172 Convulsions in infants and children, E. PERRY CRUMP, 182

Deafness, ear-noises, and dizziness, treatment of by hypothermic

therapy, SVERRE QUISLING, 219
Dental arch development as a guide to time for malocclusion correction, Joseph T. Cohen, 176

Depression: Fatigue as a symptom in depressed patients, Gor-DON R. KAMMAN, 238

Dermatological problems in a college with A.S.T.P. students, HARRY SIGEL, 15

Dermatology:

Acne vulgaris, management of, HARRY A. CUMMING, 254 Allergy in dermatology, CARL W. LAYMON, 251

Dermatological problems in a college with A.S.T.P. stu-dents, HARRY SIGEL, 15 Ringworm of the scalp (Tinea capitis), FRANCIS W. LYNCH,

Roseola infantum, O. M. Moore, 243

Detection of pulmonary tuberculosis on induction into military service, The, DANIEL L. FINK, 5 Diabetes, Pregnancy and, PAUL P. EWALD, 13

Diagnosis and postsanatorium care in pulmonary tuberculosis,

W. L. MEYER, 426 Diagnosis and treatment of ectopic pregnancy, W. A LIEBELER, 218

Digitalis: its legitimate field of usefulness, PAUL P. EWALD, 398

Disease and morals (editorial), 84 Disinfection of air by vapors and mists, 202

Education:

Health education, DEAN F. SMILEY, 71 Health education by the doctor, W. W. BAUER, 106 Higher education in the postwar era, RAYMOND WALTERS,

Tuberculin test and health education, T. L. HARRINGTON, 139 Encephalitis: Chickenpox encephalitis, ELIZABETH C. LOWRY,

191 Epidemiology: Global epidemiology, GAYLORD W. ANDER-

son, 47 Erythroblastosis fetalis, ELNA M. HOWARD, 1 Exercise and convalescence, 231

Factors in prognosis in coronary disease, HAROLD W. GREGG, 385

Fat metabolism in children, Some problems in, ARILD E. HANSEN, 167 Fatigue as a symptom in depressed patients, GORDON R. KAM-

MAN, 238 Federation of Catholic physicians' guilds, 230

Food value of oleomargarine, 202

Foreword (to 75th anniversary issue), THOMAS PARRAN, 37

Geriatrics, a new bimonthly journal, 412 Geriatrics: Preventive geriatric medicine, EDWARD J. STIEG-LITZ, 60

Global epidemiology, GAYLORD W. ANDERSON, 47

Glomus tumor (glomangioma, angoneuromyoma, glomal tu-mor), John F. Pohl, 253

Health education, DEAN F. SMILEY, 71 Health education by the doctor, W. W. BAUER, 106

Health service objectives, RALPH I. CANUTESON, 419 Heart:

Consideration of two cardiac cases amenable to surgical treatment, Arlie R. Barnes, 382 Digitalis: its legitimate field of usefulness, PAUL P. EWALD,

398 Factors in prognosis in coronary disease, HAROLD W. GREGG, 385

Heart disease: abstracts, 401

Heart-(Continued)

Introductory statement, special heart issue, S. MARX WHITE, 381

Management of the common cardiac irregularities, R. O. GOEHL, 391

Objective tests of cardiac function, G. N. AAGAARD, 391 On the founding of a Variety Club Heart Hospital, Cecil I. WATSON, 402

Rupture of heart, JACK L. DIAMOND, 396

Higher education in the postwar era, RAYMOND WALTERS, 17 Home nursing helps (editorial), 232 Hospitals, Postwar planning for (editorial), 233

Hypofunction of the lacrimal gland and the Sjögren syndrome, Andrew de Roetth, 423

Hysterectomy: selection of the appropriate operation in the particular case, VIRGIL S. COUNSELLER and FLETCHER S. SLUDER, 26

Immunization: Control of disease by means of immunization, GEOFFREY EDSALL, 50

Improvement of health through better nutrition, The, FRED-RICK J. STARE, 65

Indications for bronchoscopy in pulmonary disease, PAUL H. Holinger, 235

Indications for the surgical treatment of peptic ulcer, CARL G. Morlock, 8

Industrial Hygiene:

F. Pohl, 265

Changing attitudes toward industrial hygiene, 76 Small film radiography in industrial groups, HERMAN E. HILLEBOE and ARTHUR W. NEWITT, 133

Inheritance of Birthmarks, The, 203

In Memoriam:

ERNEST L. MELAND, 34

MABEL SIMIS ULRICH, 350, 375

Insect-borne diseases, Recent advances in the control of, James STEVENS SIMMONS, 38

Intratibial infusions in children, ROBERT D. SEMSCH and AL-BERT V. STOESSER, 194

Introductory statement, special heart issue, S. MARX WHITE, 381

Jaundice in infancy and childhood, R. V. Platou and Sam-UEL B. NADLER, 186 Justice and the future of medicine, WENDELL BERGE, 122

Kenny Concept and treatment of infantile paralysis, The, JOHN

List of physicians licensed by the Minnesota State Board of Medical Examiners: November 10, 1944, 86; February 16,

1945, 201; May 19, 1945, 314 Liver, Needle biopsy of, F. W. Hoffbauer, 246

Low back pain in the Army Specialized Training Program, LEONARD J. STARK, 223

Malaria: Medical observations in South China and notes on the health situation in an internment camp under the

Japanese, Chester W. Lawson, 241 Management of acne vulgaris, The, Harry A. Cumming, 254 Management of the common cardiac irregularities, R. O. Goehl, 391

Management of rheumatic fever, The, Paul F. Dwan, 199 Maternal and child health, RUTH E. BOYNTON, 63

Mayo memorial, The, 84, 128, 258

Medical art show (editorial), 375

Medical care, Organization for, NATHAN SINAI, 69

Medical correlator, The (editorial), 374
Medical leadership in public health, C. C. Applewhite, 355
Meet our contributors, 162, 206, 233, 259, 311, 321, 359, 403, 433

MELAND, ERNEST L., In memoriam, 34 Migraine, Ophthalmic, Walter Lees Hoffman, 252 Miliary tuberculosis vs. typhoid fever, case reports, W. E. Peterson and Albert Canfield, 138

Minneapolis Academy of Medicine, Transactions, 246

Montana State Medical Association: roster, 369; transactions,

Mumps, A school sponsored epidemic of, 158

National health program, 256

Needle biopsy of the liver, F. W. Hoffbauer, 246 Neurotic problems in a student practice, CARL I. WYLER, 104

North Dakota State Medical Association: House of Delegates, transactions, 276; roster, 301

Objective tests of cardiac function, G. N. AAGAARD, 391 Obligations of an internist to a general surgeon, THOMAS FINDLEY, 431

Observations on tropical disease, Joseph A. Holmes, 272 Obstetrics and Gynecology:

Abrupto placenta, B. URENN, 215

Anesthetic aspiration asphyxia as a cause of maternal mortality and morbidity, MILTON ABRAMSON, 19

Diagnosis and treatment of ectopic pregnancy, W. A. Liebeler, 218

Placenta praevia, E. M. RANSOM, 212

Pregnancy and diabetes, Paul P. Ewald, 13

Rubella in pregnancy and congenital malformations. Forrest H. Adams, 197

Symposium on obstetrics, introduction, R. E. Leigh, 211 Oleomargarine: Food value of, 202; Some facts about margarine (editorial), 126
On the founding of a Variety Club Heart Hospital, CECIL

J. Watson, 402

Ophthalmic migraine, WALTER LEES HOFFMAN, 252

Ophthalmology, ERLING W. HANSEN, 248

Organization for medical care, NATHAN SINAI, 69

Oswiecim death camp, statement of committee on medical aspects, 326

Pancreas, Resection of, for hyperinsulinism due to islet-cell tumors, STANLEY R. MAXEINER, 256

Pediatrics:

Conversion hysteria in children, REYNOLD A. JENSEN and ALVIN D. WERT, 172

Convulsions in infants and children, E. PERRY CRUMP, 182 Dental arch development as a guide to time for malocclusion correction, Joseph T. Cohen, 176

Erythroblastosis fetalis, ELNA M. HOWARD, 1

Intratibial infusions in children, ROBERT D. SEMSCH and Albert V. Stoesser, 194

Jaundice in infancy and childhood, R. V. Platou and

SAMUEL B. NADLER, 186

Management of rheumatic fever, The, PAUL F. DWAN, 199 Physician and the child with defective speech, The, Frances M. Brown, 200

Primary virus pneumonitis among infants in Minnesota, A third epidemic of, JOHN M. ADAMS, 192

Reading disability: a pediatric problem, THETA H. WOLF. 184

Some problems in fat metabolism in children, ARILD E. HANSEN, 167

Tuberculosis deaths among children, RUTH E. BOYNTON, 148

Penicillin in surgery, W. A. ALTEMEIER, 93

Peptic ulcer, Indications for surgical treatment of, CARL G. Morlock, 8

Physician and the child with defective speech, The, FRANCES M. Brown, 200

Placenta praevia, E. M. RANSOM, 212

Poliomyelitis:

Editorials, 309, 347, 405

Kenny concept and treatment of poliomyelitis. JOHN F. Pohl, 265

Problem of deformity in poliomyelitis, J. ALBERT KEY, 358 Report on poliomyelitis studies made at Minneapolis General Hospital, 30

Sister Kenny-five years after, 309

Pregnancy and diabetes, PAUL P. EWALD, 13 Present-day status of contraception, The, ABRAHAM STONE and

HARRIET F. PILPEL, 101

Prevention of crystallization and stone formation during constant urinary drainage, Howard I. Suny, 428

Preventive geriatric medicine, EDWARD J. STIEGLITZ, 60 Problem of deformity in poliomyelitis, The, J. ALBERT KEY,

358 Public Health:

Community health organization, HAVEN EMERSON, 78 Medical leadership in public health, C. C. APPLEWHITE, 355 National health program, 256

Radiography, Small film, in industrial groups, HERMAN E. HILLEBOB and ARTHUR W. NEWITT, 133

Reading disability, The: a pediatric problem, THETA H. WOLF, 184

Recent advances in the control of insect-borne diseases, JAMES STEVENS SIMMONS, 38 Report on poliomyelitis studies made at Minneapolis General

Hospital, 30

Resection of pancreas for hyperinsulinism due to islet-cell tu-mors, STANLEY R. MAXEINER, 256 Respitatory tract and nervous system, Specific types of alpha

streptococci and streptococcal precipitinogen in air in relation to, EDWARD C. ROSENOW, 108
Rheumatic fever, Management of, PAUL F. DWAN, 199;
Treatment of, M. J. SILAPIRO, 400

Ringworm of the scalp (Tinea capitis), Francis W. Lynch, 228

Roseola infantum, O. M. Moore, 243

Rubella in pregnancy and congenital malformations, Fornest H. Adams, 197

Rupture of hearts review and case report, JACK L. DIAMOND, 396

Sanitation: Achievements in environmental sanitation, HAROLD A. WHITTAKER, 43

Scarlet fever: Chances of spreading scarlet fever in the family,

School sponsored epidemic of mumps, A, 158

Seventy-five years of medical journalism in the Northwest, HAROLD S. DIEHL, 82 Skin Diseases:

Acne vulgaris, Management of, HARRY A. CUMMING, 254 Ringworm of the scalp (Tinea capitis), FRANCIS W. LYNCH,

Roseola infantum, O. M. Moore, 243

Small film radiography in industrial groups, HERMAN E. HIL-LEBOR and ARTHUR W. NEWITT, 133 Some problems in fat metabolism in children, ARILD E. HAN-

SEN, 167 South Dakota State Medical Association: roster, 339; transac-

tions, 330 Specific types of alpha streptococci and streptococcal precipitinogen in air, in relation to epidemic infections of the respira-tory tract and nervous system, EDWARD C. ROSENOW, 108 The physician and the child with defective, FRANCES

Speech, The physics W. Brown, 200 Spurious fitness by the endurance test, H. R. McPHEE, 226

College health service (editorial), 375

Neurotic problems in a student practice, CARL I. WYLER, 104

Tuberculosis deaths among children, RUTH E. BOYNTON, 148

Vision problems of military students with heavy academic loads, Ivon CLARK, 23

Survey of tuberculosis observed at Freeman Clinic 1934-1944 and related statistics, A. Guy L. HACKER, 140

Symposium on obstetrics, introduction, R. E. Leich, 211
Syphilis of the lung, Paul A. O'LLARY and ORVILLE E. OCKERLY, 154

Third epidemic of primary virus pneumonitis among infants in Minnesota, A. John M. Adams, 192 Thyrotoxicosis, Harry O. Drew, 351

Treatment of deafness, ear-noises, and dizziness by hypothermic therapy, SVERRE QUISLING, 219 . Treatment of theumatic fever, M. J. SHAPIRO, 400

Tropical disease, Observations on, Joseph A. Holmes, 272 Tuberculin test and health education, The, T. L. HARRING-TON, 139

441

Tuberculosis: Conquest of bovine tuberculosis, 159

Conquest of tuberculosis, J. ARTHUR MYERS, 55

Continuation of the Mantoux program in rural Minnesota, Lewis S Jordan, 142

Detection of pulmonary tuberculosis on induction into military service, Daniel L. Fink, 5 Dramatic advances on the tuberculosis front (editorial),160

Miliary tuberculosis vs. typhoid fever, W E. Peterson and ALBERT CANFIELD, 138

Survey of tuberculoss observed at Freeman Clinic 1934-1944 and related statistics, GUY L. HACKER, 140 Tuberculin test and health education, T. L. HARRINGTON,

139

Tuberculosis among college students, 322

Tuberculosis deaths among children, RUTH E BOYNTON,

Tuberculosis in the Army, 202

Tuberculosis of the cervical lymph nodes, SUMNER S. COHEN, 151

Unusual case of primary carcinoma of the liver associated with diabetes mellitus, pulmonary tuberculosis and tuberculosis empyema, S. G. CLAYMAN, 144

Vaccination against tuberculosis, 258 Tuberculosis among college students, 322

Tuberculosis deaths among children, RUTH E BOYNTON, 148 Tuberculosis in the Army, 202 Tuberculosis of the cervical lymph nodes, Sumner S Cohen,

151 Tumors:

Glomus tumor, JOHN F POHL, 253

Resection of pancreas for hyperinsulinism due to islet-cell tumors, Stanley R. Maxeiner, 256 Typhoid Fever:

Cheese and typhoid fever, 159 Miliary tuberculosis vs. typhoid fever, W E. Peterson and ALBERT CANFIELD, 138

ULRICH, MABEL SIMIS, In memoriam, 350, 375 University of Minnesota: Commended for work of 26th General Hospital, 425; Medical School, expanding facilities at, 240

Unusual case of primary carcinoma of the liver associated with diabetes mellitus, pulmonary tuberculosis, and tuberculosis empyema, S. G. CLAYMAN, 144

Use of the passive transfer or indirect method of skin testing in allergic diseases, F W. WITTICH, 249

Vaccination against tuberculosis, 258

Veteran placement of Northrop Aircraft, 257

Vision problems of military students with heavy academic loads, IVOR CLARK, 23

Wagner-Murray-Dingell bill, Major provisions of the, 311

X-ray was discovered 50 years ago, BERNARD McDougall, 422

#### EDITORIALS

Anxiety neurosis, 260

Cancer control, 161
Capital punishment for capitals, 310
College health service, 375

Disease and morals, 84 Doctors return, The, 434

Dramatic advances on the tuberculosis front, 160 Etiology of congenital malformations, The, 204 Federal-state programs for child health and medical care, 200 Have you anything to say?, 347

Heart hospital, 404 Home nursing helps, 232

Mayo memorial, The, 84

Medical art show, 375 Medical "correlator", The, 374 New Year, The, 32

Poliomyelitis, 347, 405

EDITORIALS-(Continued) Postwar planning for hospitals, 233 Prevent TB-buy Christmas seals, 432 Sister Kenny-five years after, 309 Some facts about margarine, 126 Taking an inventory, 261 Uniform universal youth examinations, 125 University of South Dakota Medical School adopts four-year curriculum, 431 Vacations now and then, 346 What are we willing to pay for health?, 432 Who shall decide when doctors disagree?, 33

#### BOOK REVIEWS

Arterial Hypertension, by IRVINE H. PAGE and ARTHUR CUR-TIS CORCORAN, 203

Atlas of the Blood in Children, by KENNETH D. BLACKFAN, 157

Autobiography of Science, The, edited by Forest RAY Moul-TON and JUSTUS J. SCHIFFERES, 261

Bronchial Asthma, by Leon Unger, 359

Clinical Lecture on the Gallbladder and Bile Ducts, by SAM-UEL WEISS, 308

Clinical Roentgenology of the Digestive Tract, by MAURICE FELDMAN, 230

Control of Pain in Childbirth, by CLIFFORD B. LULL and

ROBERT A. HINGSON, 124
Doctor's Job, The, by CARL BINGER, 157
Essentials of Body Mechanics in Health and Disease, by GOLD-

THWAITE, BROWN, SWAIN, and KUHNS, 308
Examination of Reflexes, The, by Robert Wartenberg, 432
Fertility in Men, by Robert Sherman Hotchkiss, 406 Fertility in Women, by SAMUEL L. SIEGLER, 406

Forsdike's Textbook of Gynecology, by J. H. PEEL, 229 Fractures and Dislocations, by EDWIN O. GECKELER, 432

Gastroenterology, Vol. II, The Small and Large Intestines and Peritoneum, by HENRY L. BOCKUS, 33

Hayfever Plants, by Roger P. Wodehouse, 432

Malaria in the Upper Mississippi Valley, 1760-1900, by Er-WIN H. ACKERKNECHT, 259

Mankind So Far, by WILLIAM HOWELLS, 88

Marihuana Problem, The, by the Mayor's Committee on Marihuana. 157

Mass Radiography of the Chest, by HERMAN E. HILLEBOE, 229 Psychiatric Novels of Oliver Wendell Holmes, by CLARENCE P. OBERNDORF, 157

Radio in Health Education, Symposium, New York Academy of Medicine, 406

Radiologic Examination of the Small Intestine, by Ross GOLDEN, 432

Rebel Without a Cause, by Robert M. LINDNER, 88 Sternal Puncture, a Method of Clinical and Cytological Investigation, by A. PINEY and J. L. HAMILTON-PATERSON, 33 Technical Methods for the Technician, by Anson Lee Brown,

432 Textbook of Gynecology, by EMIL NOVAK, 229
Treatment of Peptic Ulcer, The, by George J. Hener, 124 Urinary Tract, The, A Handbook of Roentgen Diagnosis, by H. Dabney Kerr and Carl L. Gillies, 33

Urological Surgery, by Austin I. Dodson, 88

Yearbook of General Therapeutics, 1944, edited by OSCAR W. BETHEA, 203

Yellow Magic-the Story of Penicillin, by J. D. RATCLIFF, 230

You Must Relax, by EDMUND JACOBSON, 203 Your Eye! Light on Sight, by F. L. WICKS, 359

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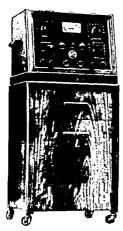
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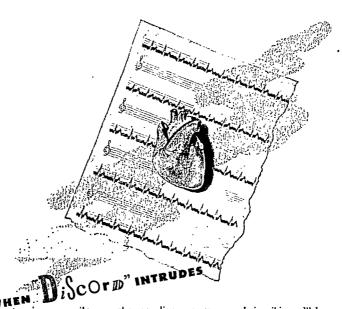
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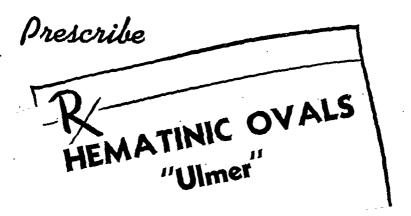
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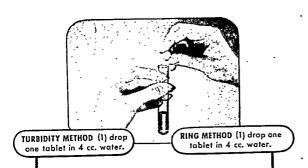
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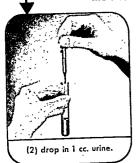
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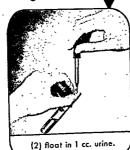


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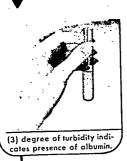
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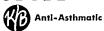
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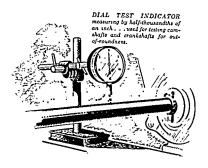


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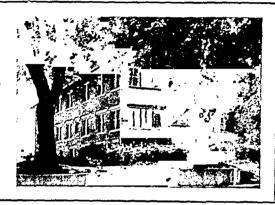
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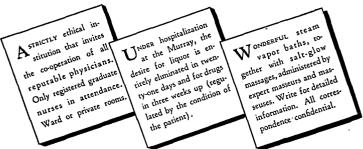
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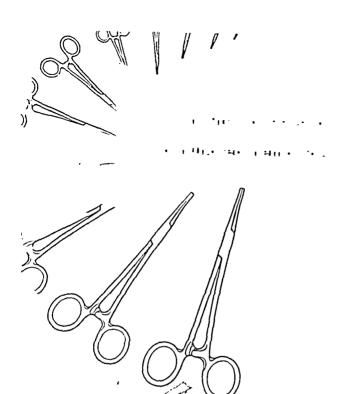


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